

ATLANTIC FISHERMAN

MARCH
1952



On-the-Site Experts

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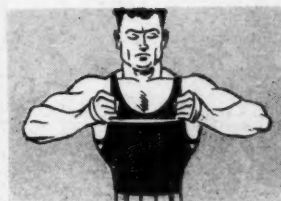
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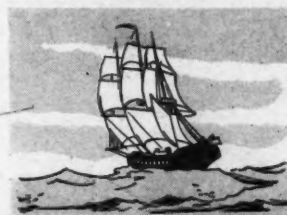
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Case History No. 292-23

BOAT AND USER: "Merkur," 40-foot salmon
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Mrs. Tom Leal, Seattle, Washington

INSTALLATION: 83 H.P. GM 3-71 Diesel
powers 24-year-old salmon troller, also
used for tuna fishing. Engine turns
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reduction gear. Replaced gasoline
engine in 1947.

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accelerates instantly from slow
trolling speed.



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GENERAL MOTORS, DIV. 1, 300 MICHIGAN
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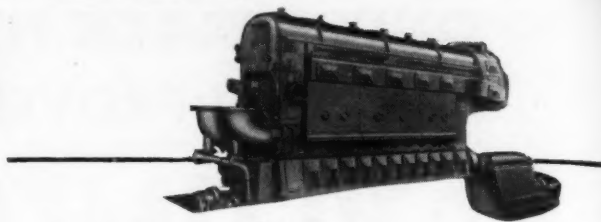
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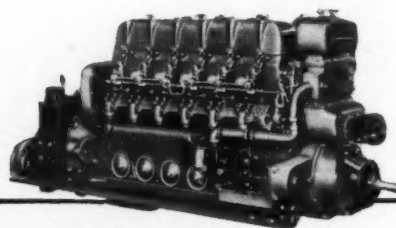
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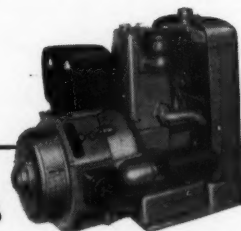
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Regulation of Net Mesh Size Will Conserve Haddock Stocks

The recommendation for increasing the mesh size of haddock nets to 3½" presented to officials of the International Commission of the Northwest Atlantic Fisheries last month, represents an important milestone in fishery conservation. If adopted by the Commission at its general meeting in June, the proposal will bring the Georges Bank area under conservation regulation for the first time.

Scientists say that while the catch of haddock may fall off slightly during the first year of the regulation, the larger mesh eventually will increase the yield of haddock from 10 to 40 percent.

As far back as 1935, William C. Herrington, at that time aquatic biologist of the Bureau of Fisheries, became alarmed by the decline in production on Georges Bank. Attempting to draw the attention of the industry to the seriousness of the situation he made an analysis of his investigations in which he pointed out that the reason for the diminishing returns could be laid largely on the size of mesh used in trawling and dragging operations.

As trawl net fishermen know, this was very sound reasoning in that the 2½" mesh usually employed in cod-ends brings about the wholesale destruction of immature fish. According to Fish & Wildlife Service biologists' reports, draggers have destroyed as many as 63,000,000 baby haddock in a single season. Such wanton waste literally prevented billions of spawn from ever being left on the banks to develop, to say nothing of the fact that if the baby haddock were allowed to live, they would have been marketable within a year.

Another North Atlantic specie now being investigated by the Fish & Wildlife Service is the ocean perch or redfish. At a public meeting in Gloucester, Mass., last month, Dr. Herbert W. Graham of the Service's Woods Hole station outlined the studies being made, stating:

"The rapid expansion of the ocean perch fleet and catch has resulted in a considerable decline in the yield from the nearby grounds as the accumulated stocks of older fish were caught. This is reflected in the total landings from New England banks where the catch reached a peak of 118 million pounds in 1941 and then leveled off around an average of 90 million pounds for the last five years. This is in spite of the discovery of some new fishing areas within New England banks which raised the catch in 1948 to 112 million pounds.

"Since 1947 the ocean perch fleet has been catching more ocean perch on Nova Scotian banks than on New England banks. Here, too, a downward trend is in evidence in the southern part where the fish were first exploited. Still increasing is the catch from the central and northern parts of the Nova Scotian banks which in 1941 produced less than 2 percent of the total United States catch but in 1949 produced 52 percent of the total.

"The slow growth and late age of maturity place the ocean perch in a much more precarious position than the rapidly growing, early maturing haddock.

"Questions which must be answered include the following: are the stocks of ocean perch being overexploited? Should the Federal Government or the International Commission take steps to manage this fishery? Are controls necessary? From the biological aspects it is too early to say. More scientific information is necessary and it takes time to accumulate this. We must learn more about the abundance in particular areas, more information on possible migrations and some notion as to the mortality rates.

"Our knowledge of the ocean perch populations has not progressed to the point where we can state whether or not any regulation of the fishery would be beneficial at this time. We do not know at what minimum age they should be captured in order to produce the greatest yield."

It is encouraging to know that definite steps are being taken to conserve the North Atlantic fishery resources. This area contains some of the world's best fishing grounds, and any measures that will help maintain their productivity should be welcome.

ATLANTIC FISHERMAN

REGISTERED U. S. PATENT OFFICE

The Magazine for Fish and Shellfish Producers
On Atlantic Coast, Gulf of Mexico, Great Lakes

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NO. 2

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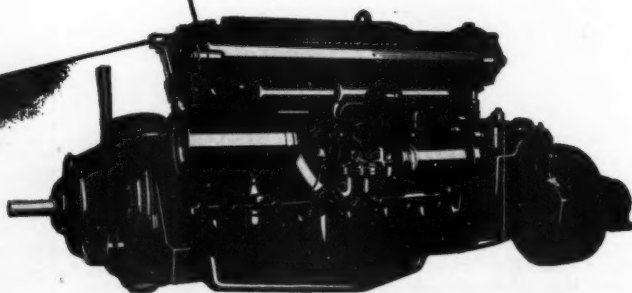
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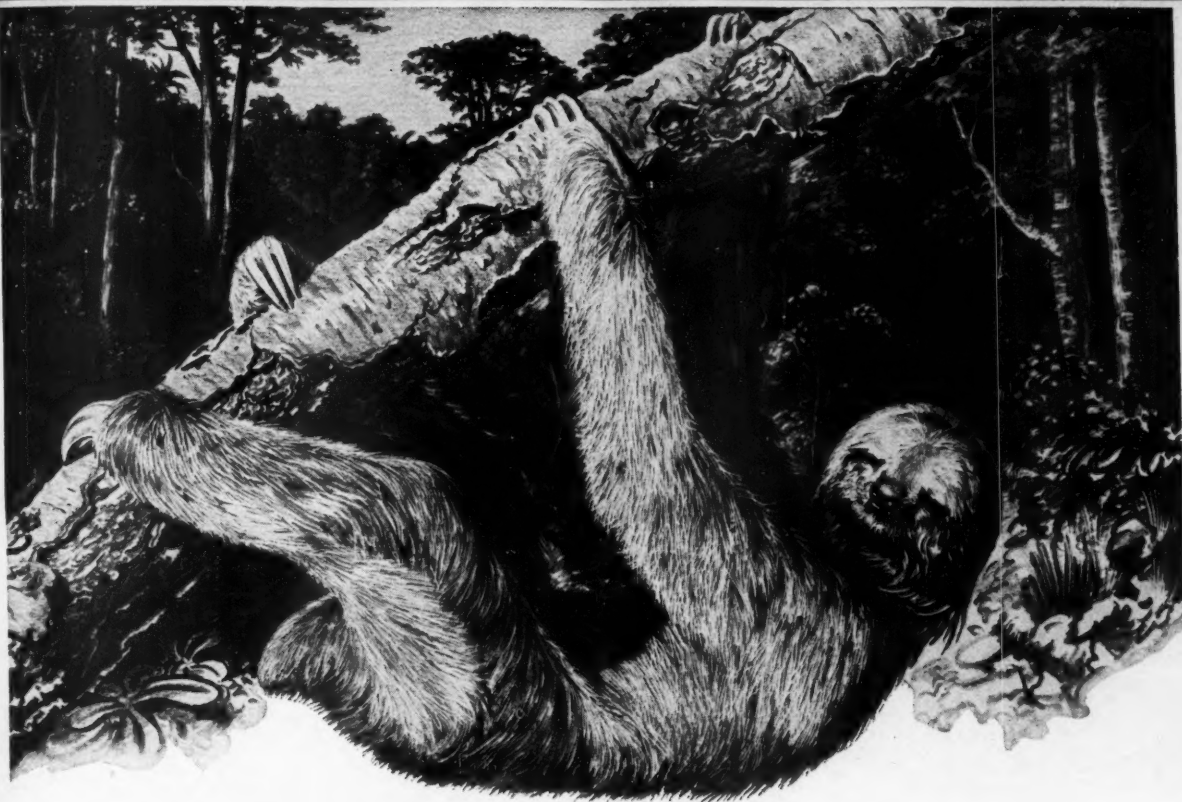
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Sounding-Lead

Consumption of fish products in United States during 1952 is expected to be at about same level as in previous year. Cold-storage stocks of edible fish and shellfish at beginning of year were record-large in size for that date, and probably will be adequate for anticipated domestic needs until Spring, when commercial production expands seasonally. On other hand, as result of several reduced 1951 packs, canned fish supplies are expected to run lower than year earlier, at least until 1952 packs start moving to market in volume after mid-year. Retail prices of fishery products probably will not change much from 1951 level, particularly if meat supplies are no larger than currently anticipated.

United States foreign trade in fishery products is likely to follow pattern of past few years. Imports, especially of frozen fish fillets, are expected to continue large. Exports, on other hand, may be somewhat smaller than in 1951.

U. S. civilian per-capita consumption of fishery products during past year continued at practically same rate (almost 11.5 pounds, edible weight) as in the preceding 3 years. The commercial catch of edible fishery products for sale in fresh and frozen form was somewhat larger last year than in 1950. Commercial freezings of all fish and shellfish in United States and Alaska totalled 325.5 million pounds, more than 13.3 percent greater than in preceding year. Retail prices of fresh and frozen fishery commodities in 1951 averaged 7 percent above a year earlier.

Boundaries of inland or internal waters of United States would be declared as far seaward as is permissible under international law, and a survey of such boundaries would be made by United States Coast and Geodetic Survey in light of Anglo-Norwegian Fisheries Case, if a resolution recently introduced in Congress is passed.

It is pointed out that the seaward boundaries of the inland or internal waters of the United States have never been accurately and definitely established, and methods previously proposed by United States for fixing of said boundaries were based upon incomplete understanding of area of inland or internal waters over which a nation may exercise exclusive jurisdiction under international law.

International Court of Justice, in Anglo-Norwegian Fisheries Case on December 18, 1951, held that it was permissible under international law for Norway to establish as the seaward boundaries of its inland or internal waters a series of straight lines running between fixed points on the mainland and around the outer edge of the off-lying islands, islets, and rocks.

The Court, in such case, held that the validity of a nation's claim relative to extent of its inland or internal waters would in case of international dispute, be governed by following basic considerations: (1) the boundary of inland or internal waters must not depart to any appreciable extent from general direction of coastline; (2) sea areas brought within such boundaries must be sufficiently closely linked to land domain to be subject to regime of inland or internal waters; and (3) economic interests peculiar to a region, evidenced by long usage, should be taken into account.

Military purchases of fishery products in 1951 were much larger than in 1950, with most of increase in fresh and frozen commodities. Procurement of fresh and frozen products in 1951, although still a relatively small part of total supply, was about 70 percent larger than year earlier; canned fish procurement was about 15 percent greater. Purchases of fresh and frozen fishery products during the third and early part of the fourth quarter of year were especially large because military agencies found it difficult to carry out their purchase program for

meat and, as a result, bought additional quantities of fishery products as an alternative protein food.

Safety regulations for commercial fishing vessels plying United States coastal waters would be tightened under bill introduced in Senate. Measure would require that ships be inspected annually to see if they are seaworthy and have safety equipment for the crews.

Shrimp and oyster packers have been very active recently. Gulf oyster pack for season through March 5 totalled 197,325 cases, against 157,087, or a gain of 26%. In week ending March 5, total of 19,085 cases were packed, compared with 11,223 year ago.

Season's shrimp pack as of March 5 was 587,496 cases, or only 7,404 cases behind cumulative total to same date year ago. Spurred by insistent demand, shrimp packers have been picking up relatively substantial supplies from more distant sources, pending reopening of inside waters next month. In this way they were able to make a surprising run of 7,620 cases in week ending March 5, compared with only 808 same seven days last year.

A fish-washing device which is proving remarkably successful for use aboard trawlers has been invented by a British trawler skipper. The new device already has been fitted on almost half the British distant-water trawlers. Reports indicate that when properly used, machine is of real service in bulk fishing.

Device consists of galvanized metal trough with removable end pieces. This travels on "tram lines" which are welded to deck stanchions. Transverse members on which trough rests can be moved up and down along these lines so as to suit whichever of the 3 hatches is being used. It can be tilted either way so as to spill fish either forward or aft.

Water is blown into trough through two jets set at an angle, so that there is always 15" or so of fresh sea water in violent commotion. The fish, as they are gutted, are tossed into trough and are thus washed completely externally and to a considerable extent internally while blood in cavity is still fresh and before congealing. Fish and water tumble out of spillway, water falling through gantry and not reaching hatch.

There are certain limitations—fish needs to be sorted before it reaches the holds, and the machine, therefore, is most suitable for use on grounds where cod only is being caught. Where there are haddock or small cod as well, practice is to deal with them separately.

Appointment of Dr. John Kask as assistant director of Fish & Wildlife Service to fill vacancy created by retirement of Milton C. James, is to become effective April 1. Dr. Kask is veteran of 25 years of activity in field of fishery management and research and has had breadth of successful experience equalled by very few in entire fishery field. His first post with Fish & Wildlife Service was as assistant director of the Service's Pacific Oceanic Fishery Investigations with headquarters in Honolulu. Recently he was transferred to Washington as chief of the Office of Foreign Activities.

Mr. James has been in Federal service for more than 30 years. In addition to serving as assistant director of the Fish & Wildlife Service, he has been a member of several international fisheries commissions and has acted as deputy administrator of the Defense Fisheries Administration since its establishment in December, 1950.

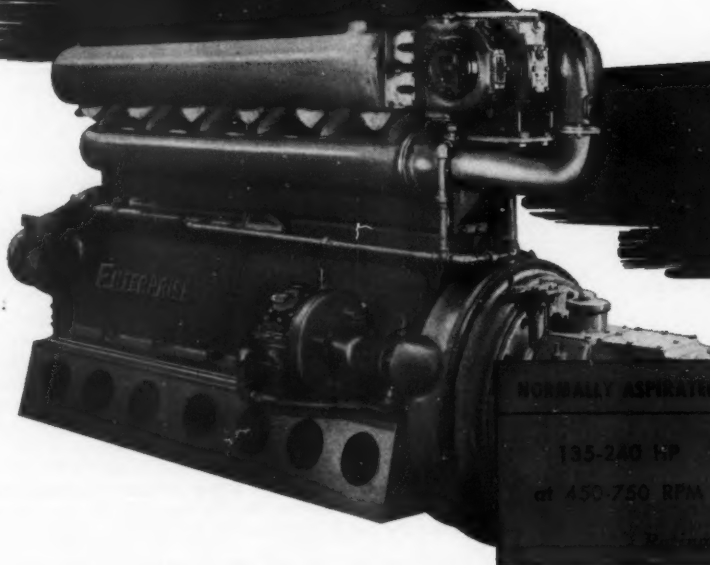
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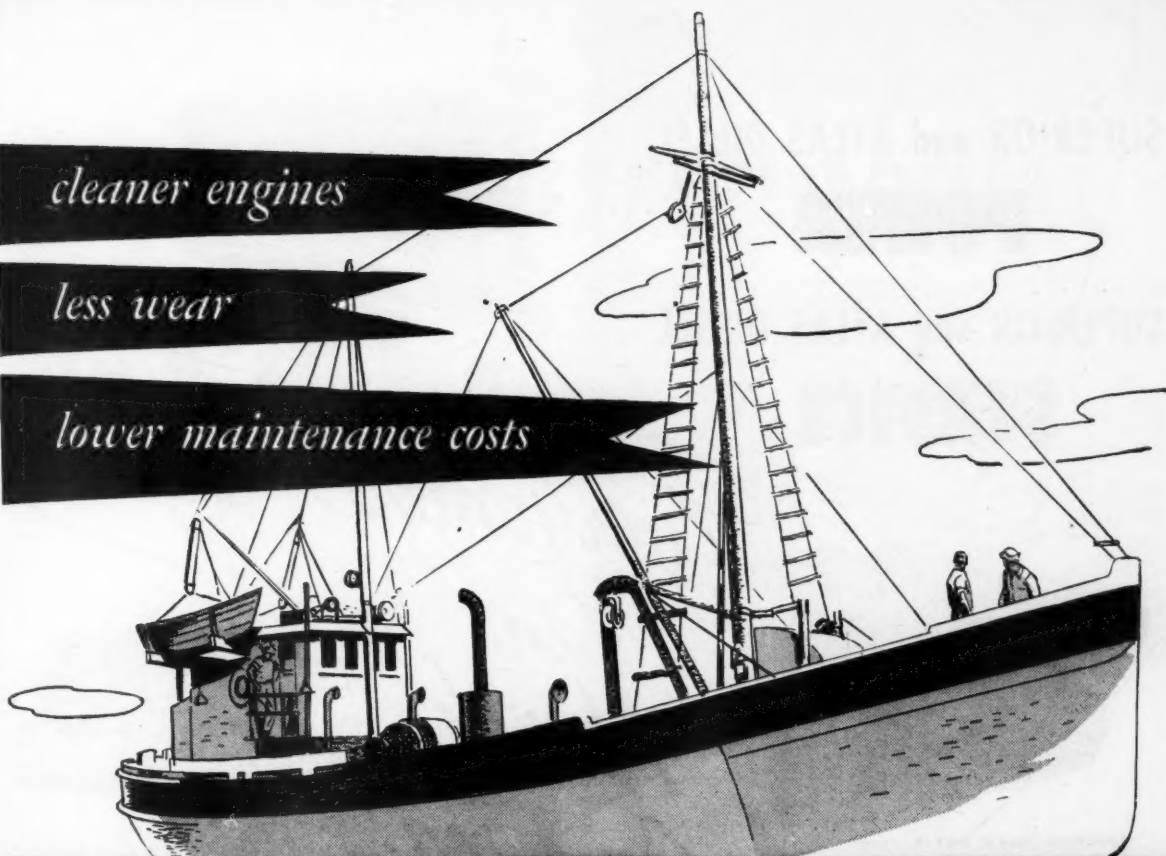
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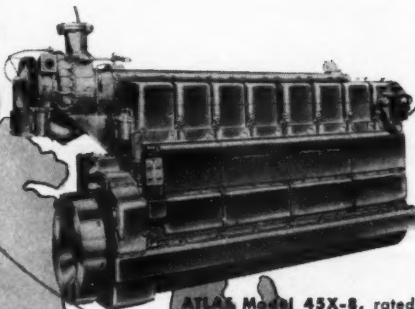
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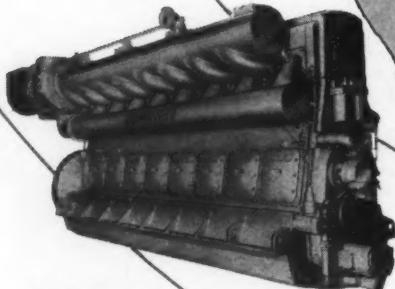
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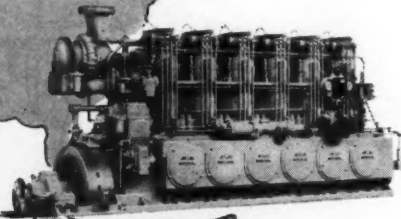
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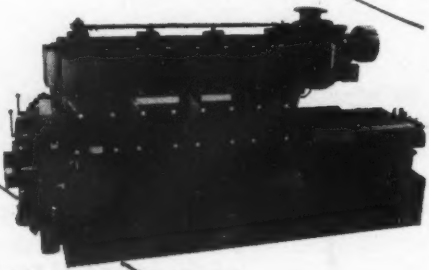
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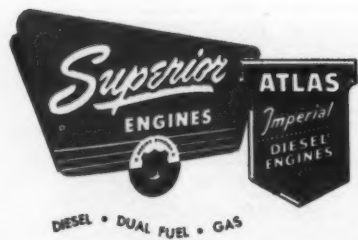
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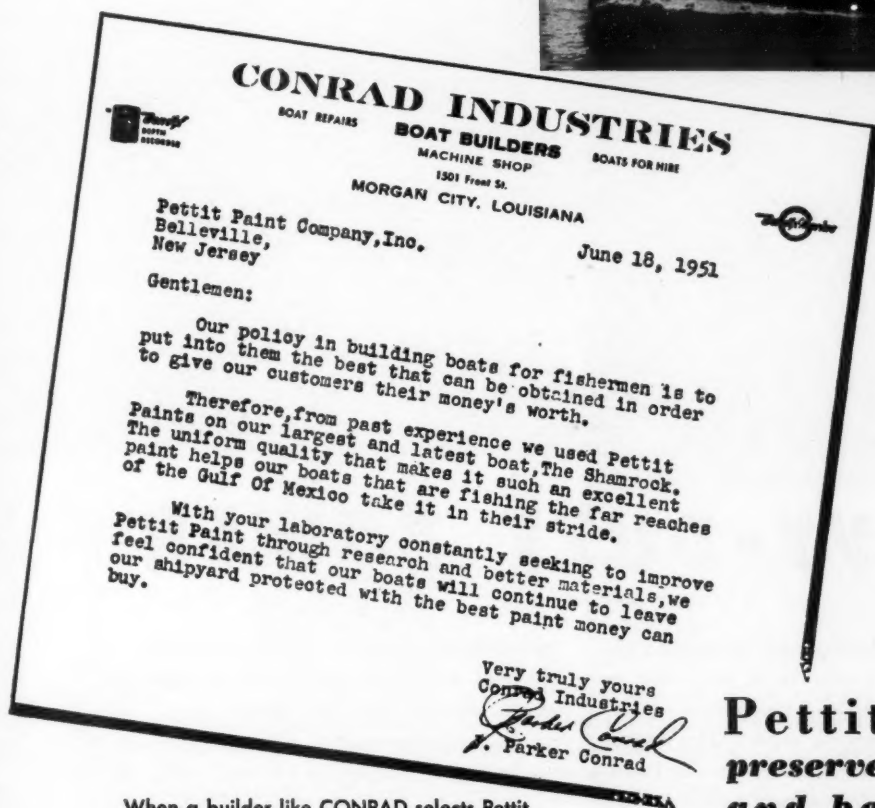


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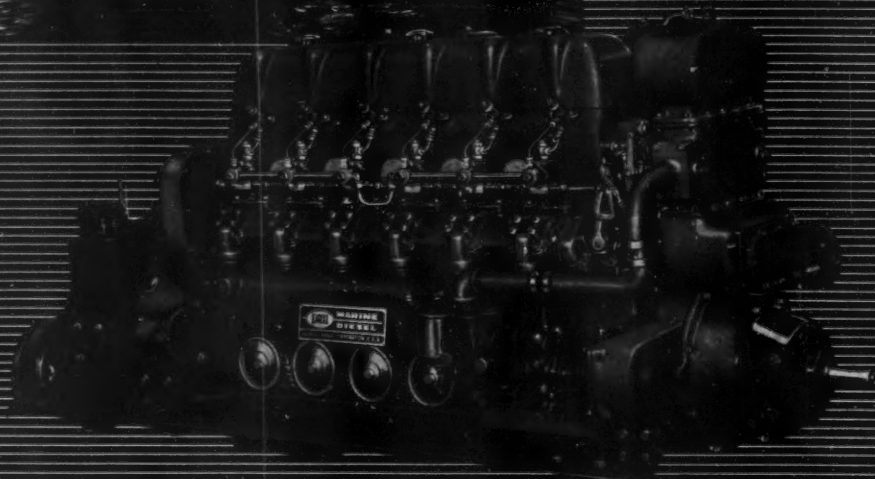
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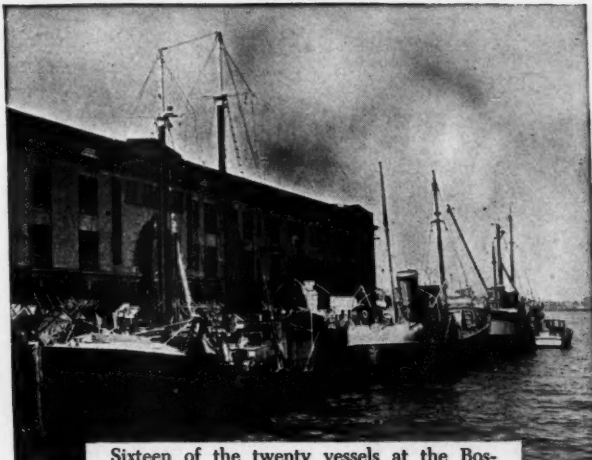
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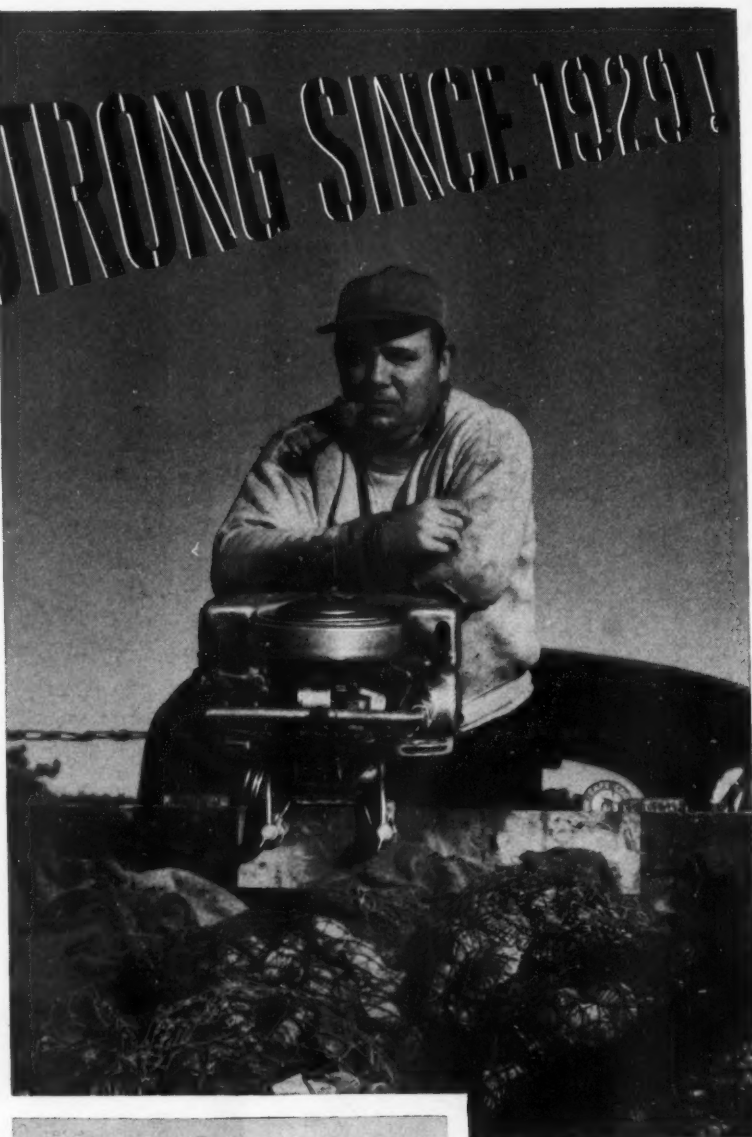
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Above: Scallop fisherman, Herb Bassett, and his 1929 model K-45 Johnson which has been in continuous commercial use for 23 years!



Left: Irvin Stenge, shrimp fisherman. His 16 ft. skiff is dependably powered by a 6-year old 5 hp. Johnson.

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Scallop Fishery of North Carolina Reviving

Last Season's Yield Was Over Fifteen Times That of Previous Year, Providing Scallop Fishermen with Substantial Income

THE scallop fishery, once of great importance along the Carteret Coast of North Carolina, hit a slump in the late 1920's, and was feared to be passing out of the picture. However, present indications are that scallops are returning to these waters and again providing an appreciable income to scallop fishermen. The North Carolina scallop yield jumped from 532 gallons in 1949-50 to 8,409 gallons in 1950-51.

This season scallops are more plentiful than since 1933. Eelgrass is coming back and scallops are all along the shoals to Hatteras. The Core Sound area has a good crop. The amount of scallops reported marketed by dealers during December, 1951 was 15,600 gallons, against 6,242 for December, 1950.

According to Dr. A. F. Chestnut, shellfish specialist with the Institute of Fisheries Research, Morehead City, N. C., Carteret County is the heaviest producer of scallops in North Carolina, the largest fishery being limited to Bogue and Core Sounds. Occasionally, however, quantities of scallops are found in the Hatteras-Buxton area of Pamlico Sound.

In North Carolina, scallops are harvested by raking or dredging. A raker wades over the flats, generally through the low tide period, to rake the scallops by hand. The rake resembles a potato or peanut digger with 6 tines fitted with a small wire basket to aid in retaining the scallops. Dredging is done from various small boats up to 35 and 40' in length.

Since the early 1930's the amount of scallops gathered has been small in comparison to previous years. Federal statistics show that North Carolina marketed nearly 1,400,000 lbs. of bay scallop meats in 1928, thereby exceeding the production of any other State. The bay scallop is the only species of scallop that has been of commercial importance to North Carolina.

Disappearance of Eelgrass

Following the disappearance of eelgrass, scallops became scarce in North Carolina and along the entire Atlantic Coast except for the State of Florida, where production continued to increase during the period when other States were harvesting few or no scallops.

Investigations have shown that many other forms besides scallops disappeared when the eelgrass died. A grassy bottom is generally considered necessary for the growth of scallops. Dr. J. S. Gutsell, who conducted extensive studies in North Carolina, suggests that the grass affords some protection to the adults and provides a surface on which the young scallops may attach themselves.

The presence of any suitable grass is believed to serve the same purpose, and this has been found to be the case the past few years when scallops have appeared in areas covered with grass other than eelgrass. The possibilities of further restoring the scallop fishery of North Carolina might be in the introduction of a suitable grass to substitute for eelgrass.

At present there are some extensive grassy plots in both Core and Bogue Sounds. Indications are that scallops are present in commercial quantities in some areas of Core Sound, but are not as plentiful in Bogue Sound as they were during the 1950 season.

Calico Scallops

North Carolina fishermen often catch a small scallop from Cape Hatteras southward, which closely resembles the bay scallop. This scallop is the calico scallop.

In 1949 the trawler *Penny*, while conducting experimental shrimp trawling for the Institute of Fisheries Research, located an abundance of these small scallops in ten fathoms of water off New River Inlet. The possibility



Roy Styron's 33' commercial fishing boat "Boys" of Davis, N. C. Built in 1940 by Edward Willis of Sealevel, the craft is equipped with Chrysler engine, Columbian propeller and Hudson American Corsair radiotelephone.

of utilizing these small calico scallops for market has not been explored, but their apparent easy availability and abundance offer an opportunity.

Attempts have been made to cultivate scallops in Massachusetts, but the results have not been certain. Some success has been achieved by transplanting scallops from heavily populated areas to depleted beds, but this must be done rapidly for scallops do not survive for extended periods out of water.

The marketable scallops in the United States are of two kinds—bay scallops, which are found in the shallow waters of protected bays and sounds, and large sea scallops found in the deep ocean waters off the Virginia coast northward to the Grand Banks.

Muscle Only Edible Part

Many consumers of scallops who never have seen a live scallop do not realize that the meats they eat represent only about one-twentieth of the entire animal. The only portion of the scallop that is eaten is the muscle which holds the shells of the animal closed while it is alive. A heaping ten-quart bucketful of 115 scallops gathered recently from Core Sound for experimental purposes yielded only one pint of saleable meat, about four pints of waste meat, and 15 pints of shells.

The U. S. Fish & Wildlife Service recently has been advocating the utilization of scallop waste for fish bait, particularly to stimulate interest among the sea scallopers to save their waste and thereby realize an additional source of income. In some countries all the soft parts are used for human consumption. They are discarded in this country, presumably because of their conspicuous coloration and the tough mantle margin.

The waste portion of the meats which are discarded contain the viscera of the animal, chiefly consisting of sex glands, gills and digestive system. A unique characteristic of the scallop is the presence of blue-colored eyes that have a metallic glitter in a bright light. Each eye, located between the tentacles in the fringe of the mantle, contains a cornea, iris, lens and retina, and is capable of perceiving motion of objects.

Early Development of Scallops

The early development of the scallop is similar to that of the oyster and the clam. Mature scallops discharge

(Continued on page 33)



Shrimp boats at Key West, Fla. Over 300 of these craft are now operating out of Key West.

Shrimpers Make Record Haul in Gulf Waters

Last Year's Catch Included Large Quantity of Grooved Shrimp Taken on Newly-Discovered Grounds

ABOUT three out of every four shrimp caught by U. S. fishermen hail from Gulf waters and last year's Gulf Coast shrimp output was a record 155 million pounds. That was six million above the previous peak in 1950, and 35 million above the post-war low, reached in 1948. It was some 50% above the catch of prewar 1939.

The big haul, shrimp men say, is putting their product on a lot of dinner tables as far inland as Denver and Des Moines—places where shrimp was hardly heard of before World War II. And it's bringing down prices. As recently as 1948 jumbo shrimp were selling for 85¢ a pound at Texas fishing ports. Last Fall the price was about 60¢. Today it's around 50.

Much of the shrimp production rise can be traced to the small port city of Brownsville at Texas' southern tip. Four years ago huge shrimp beds were found on the Gulf floor off Brownsville. Since then, Brownsville has become the U. S. shrimp capital.

In 1951, boat crews operating out of the Brownsville area pulled in a shrimp catch of close to 40 million pounds. That was one of every four pounds taken by Gulf Coast fishermen. The 40-million-pound haul was double the amount landed there in 1950; back in 1948, the Brownsville catch was barely enough to satisfy local appetites in that city of 30,000 people.

Texas chalked up estimated shrimp production of close to 70 million pounds last year, up from 50 million a year before and only 17 million back in 1948. The 1951 climb put Texas ahead of the long-time leader, Louisiana. Shrimp output in Louisiana during 1951 fell to an estimated 60 million pounds, from 65 million the year before.

Heavier Accent on Freezing

To speed the rising tide of shrimp kitchenward, packers have veered toward more and more freezing of their product. Only back in 1948, half the U. S. shrimp catch went into cans and some 25% was frozen, the rest being sold fresh. By 1951, the frozen proportion had swollen to 80% of the total.

The Brownsville, Texas, shrimp boom is closely tied to the heavier accent on freezing. Almost all the shrimp landed there goes to consumers in frozen form.

However, shrimp packers aren't banking simply on

stepped-up freezing or lower prices to unload their rising supplies. Turning more Americans into shrimp eaters is one of the objectives of the newly-formed Shrimp Association of the Americas, which includes Mexican as well as U. S. trade organizations.

The persuasion efforts are being directed from headquarters at Brownsville, Texas. Says James E. Barr, executive secretary: "We believe only 35% of the potential shrimp market has been tapped. An educational program may help us absorb higher production in the long run."

The program will include a "modest" advertising campaign aimed mainly at housewives in the Midwest. It will point out that shrimp prices have come down, and it will suggest that shrimp is just as well suited for main courses as for appetizers.

Mr. Barr sees a further encouragement to consumption in the growing output of frozen breaded shrimp. It's rolled in a batter of milk, eggs and cornmeal, ready to pop into



The "St. George", 50' shrimper built by Diesel Engine Sales Co., St. Augustine, Fla., for the St. George Packing Co., Ft. Myers Beach. Her power plant is a 120 hp. Caterpillar D13000 Diesel with 2:1 Twin Disc reduction gear.

a skillet for French-frying. It comes in 10-ounce and 1½-pound cartons. The breaded product is turned out by a handful of plants at a rate of 10 million pounds a year.

Grooved Shrimp Now a Major Variety

W. L. Hardee, Brownsville dealer, reports that there is a trend toward better working equipment making it possible for boats to go farther away to such fabulous fishing grounds as Campeche Bay off Mexico where they gather the now highly acceptable grooved shrimp. Hardee estimates that 95 percent of all the shrimp docked at Brownsville and at Port Isabel is the grooved variety, whereas white shrimp formerly predominated. Both the brown-grooved shrimp and the pink—or spotted—grooved shrimp are unloaded there.

For generations, the only shrimp known were the white shrimp caught in bays and other coastal waters by small boats which scarcely ever ventured out of port for more than a few hours. Now high-powered Diesel driven boats with electronic fathometers and power winches are gone from port for long periods, sometimes weeks at a time, fishing for grooved shrimp.

Brownsville and Port Isabel became deep-water ports in the late twenties, and then in the year 1935, the first grooved shrimp were caught in any quantity. They were netted in 10 fathoms of water just off Padre Island and in sight of Port Isabel itself.

The shrimp were not immediately acceptable because of their color, their bronze hue being mistaken for the pink cast taken on by decaying white shrimp. It was not until wartime food demands became urgent that these shrimp began to be generally consumed.

In the late Fall of 1947 it was found that huge beds of grooved shrimp were offshore in 20 fathoms or more. Many additional bronze or brown shrimp as the trade calls them were found in waters to the South and this variety met with increasing acceptance on the part of the public.

Shrimpers Operate at Night

Grooved shrimp, including both the brown and pink varieties, are caught mainly by trawling operations at night, while the white shrimp are caught during daylight hours. Although the habitat of the grooved and white shrimp may overlap, the grooved species, more particularly the brown variety, frequents deeper water than the white shrimp. The greater bulk of grooved shrimp catches have been made at depths from 15 to 25 fathoms, although they have been caught in depths of 50 fathoms. The white shrimp are generally taken in less than 20 fathoms.

Since the initial landings of grooved varieties at Gulf Coast ports, a greater and greater proportion of the total



The 63' shrimp trawler "Luxury Liner", owned by Chris W. Dubard, Port Isabel, Texas. She was built by Southern Shipbuilding, Inc., Jacksonville, Fla., and is equipped with a D13000, 120 hp. Caterpillar Diesel.

catch has consisted of these varieties, mainly because of (1) intensified trawling operations at night, (2) trawling at greater depths, (3) the location of new shrimping areas, and (4) trawlers extending their range of operation to a greater distance from home port. Estimates show that from 40 to 50 percent of present Gulf production is grooved shrimp as against less than 5 percent in 1945.

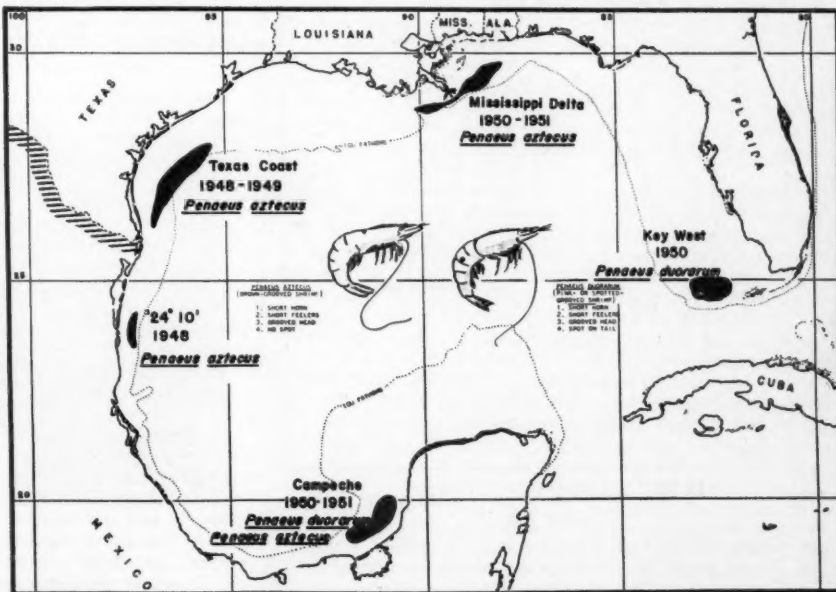
A factor of no small importance has been the shifting of the vessels' bases of operations from one Gulf Coast port to another, as well as from ports of the South Atlantic States, thus creating a much greater fishing intensity out of ports nearer the fishing grounds. Last, but of prime importance, has been the trade's acceptance of the grooved varieties despite their difference in color. However, generally speaking, the majority of grooved shrimp continues to sell a few cents per pound less than the common or white variety of the same size and quality.

Unutilized Shrimp Beds

There are still areas in the Gulf having stocks of shrimp not being utilized for one reason or another. One such

(Continued on page 45)

Fish & Wildlife Service map showing new grounds for grooved shrimp. Beds of brown-grooved shrimp (*Penaeus aztecus*) are located in the Mississippi Delta area, along the Texas coast, the upper Mexican coast, and in the Campeche, Mexico area. This species of shrimp has a short horn, short feelers, grooved head, but does not have a spot. Pink- or spotted-grooved shrimp (*Penaeus duorarum*) are present in the Key West, Fla., and Campeche, Mexico, areas. A short horn, short feelers, grooved head and spot on tail are characteristics of this variety.



Haddock Prediction for 1951 Proves Accurate

By Howard A. Schuck, U. S.
Fish and Wildlife Service

THE method of predicting the catch of haddock from Georges Bank a year in advance which was developed by the Woods Hole, Mass. Fishery Laboratory, proved 98.4 percent correct as regards the 1951 haddock landings. The method is dependent on the analysis of detailed data which have been collected routinely by the Fish & Wildlife Service since 1931.

Required for this analysis are the statistics of catch, including especially measures of the effort expended in making these catches, and data on the age composition and on the lengths and weights of the haddock landed over a period of years. The method depends on establishing the relation of the decline in abundance of each age group between succeeding years, together with establishing the variations in abundance of the several age groups contributing to the fishery. Once these relations have been established, it is possible to predict the landings for any year, providing data on the landings and on the age composition of the year preceding are available.

Although it has not yet been possible to present the full details of this method, it has been used to predict the Georges Bank haddock catch. This was made by Dr. William F. Royce to the National Fisheries Institute at their 1951 annual meeting in Boston, Mass. The prediction was for the "haddock year" of 1951, which differs by one month from the calendar year. The 1951 haddock year began February 1, 1951, and ended January 31, 1952.

It was predicted that a considerably greater catch would be made from Georges Bank in 1951 than the 80.5 million pounds landed in 1950. Just how much increase could be expected over 1950 obviously depended upon how much fishing would be done on Georges Bank in 1951. Thus, predictions were made for each of several fishing intensities.

If, in 1951, the amount of fishing on Georges Bank was the same as in 1950, the catch to be expected was set at 88 million pounds; for a 10 percent increase in fishing effort, the prediction was set for 93 million pounds; and

for a 10 percent decrease in effort, a catch of 83 million pounds was anticipated.

Size Also Predicted

Now that the 1951 haddock year is over, it is possible to make an evaluation of the prediction. But, of course, the evaluation at this time is not absolute since only estimates for the last two months of the landings are available.

The records show that there were 9.7 percent more days fished in 1951 than in 1950. With this increase in fishing, the catch was predicted to be 92.8 million pounds. Actually, 91.3 million pounds were landed. Thus the landings differed from the prediction by only 1.5 million pounds. The prediction proved 98.4 percent accurate.

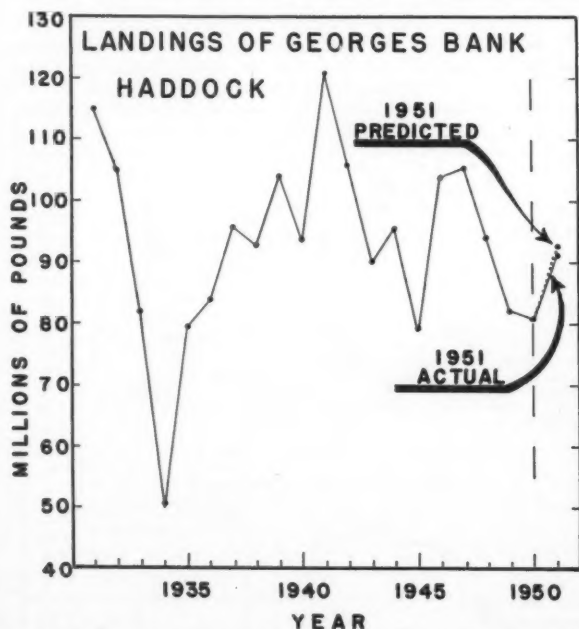
A prediction also was made of the size of haddock to be expected in the landings. It was predicted that "a larger than usual percentage of the 1951 catch would be good-sized scrod, averaging about 2½ pounds".

In the average year haddock weighing about 2½ pounds (2 to 2½ pound range) have accounted for approximately 29 percent of the landings. For 1951, all of the size composition data are not yet analyzed, but for 7 trips to sea made by Service biologists these data are available. Fully 43 percent of the landings from these trips were composed of 2 to 2½ pound fish. Thus, as predicted, considerably more of this size group were taken than are taken in an average year.

Encouraged by the fact that the actual landings closely approximated the predicted catch, we are now in the process of making the second annual prediction—that for 1952.



Howard A. Schuck, fishery research biologist stationed at the Woods Hole, Mass. Fish & Wildlife Service laboratory.



Graph showing Georges Bank haddock landings in millions of pounds for the 20-year period 1931-1950, and the predicted and actual 1951 production.

Larger Mesh Recommended for Georges Bank Haddock Nets

The commercial haddock fishery in the Georges Bank area off the New England coast may be brought under international regulation to attempt to increase the yield if a recommendation proposed at Ottawa, Canada is accepted by the International Commission for the Northwest Atlantic Fisheries.

Commissioners and advisers of ICNAF's Panel 5 met at Ottawa February 26 and 27 and accepted a recommendation made by scientists of both countries that the mesh size of haddock fishery nets should be increased from 2½ to 3¼". This increase in mesh size would allow the escape of unmarketable baby haddock. The change in mesh size is intended to prevent the destruction of large quantities of small haddock. Boats not fishing for haddock would be allowed up to 5,000 lbs. of haddock or 10% by weight of their total catch.

Canada and the United States are the only two countries holding membership on Panel 5. The recommendation of the Panel is to be submitted to the general meeting of the 10-nation Commission to be held at St. Andrews, N. B., in June. If adopted by the Commission, it will be the first time in history that the high seas fishery of the Northwest Atlantic has been brought under conservation regulation.

(Continued on opposite page)

Scientists of the United States have been studying the haddock resources in the Atlantic for nearly 20 years, but intensive work toward the adoption of conservation measures was not started until 1948.

The Georges Bank haddock fishery is one of the richest of the famous Northwest Atlantic "banks" and supports a large industry centered in Massachusetts. The advance of modern fishing gear, particularly the trawl, along with natural biological fluctuations, have resulted in a decline in the haddock stocks. New England fishermen have been forced to extend their operations to the banks off the Canadian coast several hundred miles to the east.

The conservation and development of the fish stocks in Sub-area 5, which is the smallest of the five areas covered by the International Convention, have officially been under consideration since the ratification of the treaty in 1950. Sub-area 5 extends along the New England coast from the Rhode Island-Connecticut line to the international border between Maine and New Brunswick. The extensive scientific research already going on in connection with the haddock fishing of Sub-area 5 would be continued to assess the effect of the new mesh regulation.

The Panel members also considered problems associated with the apparent decline in the redfish (ocean perch) landings. It was agreed that there would be continued investigation in this fishery with a view to later recommendations.

The meeting was under the chairmanship of Francis W. Sargent of Orleans, Mass., director of the Massachusetts Division of Marine Fisheries. Other commissioners in attendance were: Dr. John L. Kask, assistant director of the U. S. Fish and Wildlife Service, Washington; Bernhard Knollenberg, Chester, Conn.; Stewart Bates, Deputy Minister of Fisheries for Canada; and Howard MacKichan, general manager, United Maritime Fishermen Limited, Halifax, N. S.

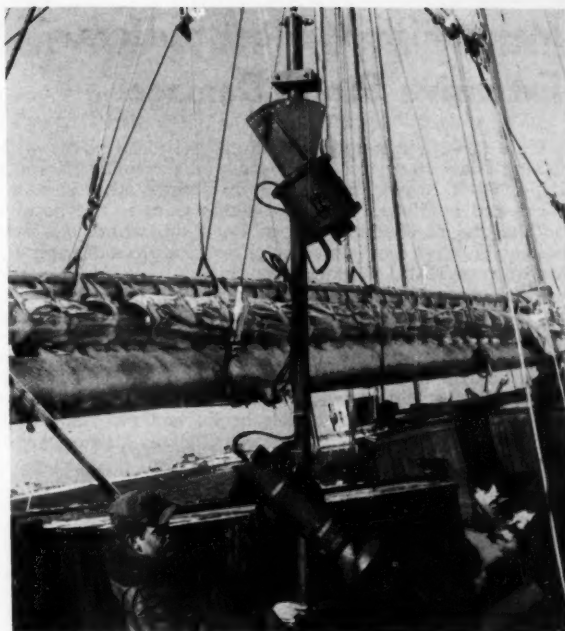
U. S. advisers and observers attending the meeting were: Dr. Wm. C. Herrington, Special Assistant to the Under-Secretary of State, Washington, D. C.; Dr. Herbert Graham and Howard Schuck, U. S. Fish & Wildlife Service, Woods Hole, Mass.; and Leonard O. Warner, member of the Commission's Advisory Committee, Providence, R. I.

"Good Housekeeping" Fish Cook Book

The March issue of *Good Housekeeping* magazine carried a complete 32-page fish cook book with 4-color pictures of fish dishes and recipes of all kinds for the preparation of fishery products. Included are salt-water fish, fresh-water fish, shellfish, canned fish, and frozen fish. There are instructions on how to bake, broil, poach, steam, pan fry, and oven fry. There also are instructions for fish suppers, luncheons, sandwiches, salads, sauces and relishes.



FLAGSHIP FOR THE FISHING FLEET of Sandimex, S. A., Santa Rosalia, Baja California, is the new 64' shrimp trawler "Elena". She is powered by a National Supply Co. 4-cylinder, 110 hp., 325 rpm. Atlas Diesel which turns 3-blade 50 x 42 propeller, giving the vessel a speed of 9.3 knots.



David M. Owen, underwater photographer, holds the newly-developed repeating underwater camera on the ice-covered deck of the research vessel "Caryn", after a trip to the sea scallop grounds off Nantucket Island, Massachusetts. The photographing of the scallop beds was part of an investigation of the sea scallop fishery being conducted by the Woods Hole, Mass. Oceanographic Institution.

Underwater Photography Used In Massachusetts Scallop Study

The first extensive look at the ocean bottom—sea scallop beds at a depth of 150'—was obtained recently near Nantucket Island, Mass. with a newly developed underwater camera, the Woods Hole, Mass. Oceanographic Institution reports.

A repeating underwater camera, which takes one picture every 45 seconds with the aid of a brilliant flashlight, was lowered over the side of the research vessel *Caryn*. The ship was allowed to drift over Nantucket Shoals, a favorite fishing ground for the six-million-dollar sea scallop industry of Massachusetts.

While the 97' sailing ship rolled heavily downwind in the trough of the Winter storm waves, underwater photographer David M. Owen and shellfish biologists Harry S. Turner and Arthur J. Posgay kept a constant vigil on the wire from which the camera was lowered.

At the end of a two-mile drift, the camera was brought back to the surface and Owen quickly developed the film in the darkroom of the laboratory on board the *Caryn*. He had succeeded in obtaining the first extensive view of the ocean bottom, giving him another first in underwater photography since, in 1948, he also took the deepest picture on record at a depth of 3½ miles in the Atlantic.

Although many of the photographs were out of focus, due to the rolling of the ship which kept changing the distance from the camera to the bottom, they gave valuable information to the biologists. A preliminary check indicated that the scallops were thinly distributed in the photographed area—only one scallop per 26 square feet was counted.

The sea scallop investigation at the Woods Hole Oceanographic Institution is part of a shellfish resources program supported by funds from the Massachusetts Division of Marine Fisheries. Although the sea scallop industry in general seems to be in a healthy state, the investigation was undertaken to learn more about the biology of the sea scallop and its relation to the environment.

Maine Fishing Fleet Suffers Extensive Storm Damage

Gale force winds and pounding seas raised havoc with fishing boats along the Maine coast on February 18, sinking a 102-ft. dragger and piling up several other craft on rocks and mudflats. The *John Nagle* went to the bottom off the end of Union Wharf in Portland, where she was being converted from an army patrol craft to a dragger by her owners, F. J. O'Hara & Sons, Inc.

Two other draggers piled up against the Portland Bridge. These were the 70-ft. *Alice M. Doughty* and the 90-ft. *Vandal*, both owned by the Harris Company. Another Harris Company boat, the 85-ft. *Vagabond*, was driven on the flats at Mill Creek Cove. The fifth casualty for the Portland fleet was the 78-ft. *Sea King*, owned by Maine Sea Foods, Inc., which broke her moorings and went aground on the flats between Central Maine Power Company's plant and its fuel storage tanks.

Tag Identifies Lobsters as from Maine

For the first time, a labeling device has been perfected that will identify every Maine lobster from the time it is taken from the pound until it reaches the consumer's table, cooked and ready for eating.

The Maine Publicity Bureau announced last month that this new type label, developed by Roland W. Hurtubise, president of the Maine Lobster Co. of Portland, is now being affixed to each lobster shipped out-of-State by his company. The button-type metal tag is clipped through the outside tail flipper and carries the message, "Maine Lobster, airborne, Portland, Me." on one side and "Maine Lobster, airborne" on the other.

The tag is one inch in diameter and cannot be removed without disfiguring the lobster. Thorough tests have proven it to be harmless to the consumer and it imparts no taste to the meat. The button remains on throughout cooking and is positive evidence that the lobster came from Maine. It is expected that within a short time all Maine shippers will use the permanent type lobster marker.

New Vessels Launched

Newbert & Wallace of Thomaston launched the 83 ft. dragger *Cap'n Bill 2d* on February 23 for Capt. Henry Klimm of Woods Hole, Mass. The craft is oak framed and planked and is powered with twin 165 hp. General Motors Diesels, driving a single wheel. The dragger is patterned after the *Jacob Pike* of Holmes Packing Corp., but has a higher rail and a whaleback forward. The vessel is equipped to sleep 12 men and its holds can take 90,000 lbs. of fish.

On February 7 the Rockland Boat Shop launched the 35 ft. x 10½ ft. x 3 ft. 4 in. lobster boat *Lillian* for Lavon Ames of Matinicus. The new craft is named for, and was christened by, Ames' daughter, Lillian. Power is supplied by a 115 hp. Chrysler gasoline engine. The vessel is oak framed and cedar planked, with Monel fastening below the water line.

Appointed to Sardine Committee

Moses P. Lawrence of North Lubec was appointed to the Maine Sardine Tax Committee for a five-year term by Sea & Shore Fisheries Commissioner Robert L. Dow on February 23. Lawrence succeeds Victor Corey of Portland and New York, whose one-year term expired on February 9. One of Maine's veteran sardine canners, Lawrence operates plants at North Lubec and Rockland in partnership with his brother Frank Lawrence.

Lobstermen Lose Lives in Storm

A rising northeast gale, carrying the start of a blinding snow storm, whipped Penobscot Bay into a mass of churning water off Old Man Ledge on February 17 and took the



The 54' sardine carrier "Paul S." at the wharf of her owner, F. H. Snow Canning Co., South Gouldsboro, Me. Power for the vessel is supplied by a 4-cylinder, 80-120 hp. P&H Diesel which turns 36 x 22 Columbian propeller through 2:1 Snow-Nabstedt reduction gear, to give a speed of 9 mph. Other equipment includes Shipmate range and Columbian steering gear.

lives of two men after their heavily laden 30-ft. lobster boat had foundered. Harland Davis of Cushing and James B. Haigh of Portsmouth, N. H. died of exposure after leaving their boat which filled and submerged.

"Flow" Is Rockland Highliner

Highline boat at the port of Rockland for the month of January was the *Flow*, which landed a total of 383,800 lbs., followed by the *Aloha*, with 119,300. Other boats reporting their landings were the *Breeze*, 106,250; *Ocean Spray*, 79,400; *Dorothy & Ethel II*, 43,300; *Helen Mae*, 21,300; *Rhode Island*, 17,200; and the *Little Growler*, 5,300.

Building Scallop Dragger

Bristol Yacht Building Co., South Bristol, is building a 77' scallop dragger for Raymond Larkey of Jersey City, N. J. and John G. Sturges of Brooklyn, N. Y. The craft will be powered with a 280 hp. Atlas Diesel.

Two Vessels Repowered

The *Lawrence Scola*, owned by Lawrence Scola and operated out of Portland and Boothbay Harbor, is having a new WM1197 Wolverine, 200 hp. 1600 rpm. Diesel installed at the Wolverine factory in Bridgeport, Conn.

The sardine carrier *Black Diamond*, owned by Seaboard Packing Co., Lubec, is to be repowered with a Lathrop DH-200 Diesel.

South Carolina Men Injured In Boat Explosion

Three men were injured early in February when the 26' oyster boat *Failfaith* exploded at the docks of the Yonge's Island Cannery Co. of Meggett. The boat burned to the water line.

James Calder, Jr. of Meggett, crewman on the oyster boat *Robert E. Lee*, tied up alongside the *Failfaith*, suffered second and third degree burns of the face and neck when the explosion caused a flame to spurt onto the *Lee's* deck, trapping him against the cabin. No damage was sustained by the *Lee*.

Isiah Heyward of Meggett, mechanic on the *Failfaith*, suffered second and third degree burns of the hands and first degree burns of the face and neck. A third crewman, Carl Prosser of Yonge's Island, was treated for first degree burns of the left hand.

How to Get Maximum Service from Wire Rope

Construction and Use of Trawl, Net and Deck Lines

Explained by Harold F. McCarthy and Richard J. Stone*

A BLAST on the whistle and the haul back signal is given. As the winch draws the main wires inboard all hands anticipate with excitement, curiosity, and hope the release of the cod line. Each bag of fish adds its share to an industry amounting to a sizeable segment of our national economy.

A large portion of the industry's catch rides to the decks of trawlers on the strength and durability of steel wire ropes. These wire ropes used in the fishing industry comprise those of the 6 x 19 classification used as trawl lines, ground lines, roller lines, bridle legs, and foot ropes, of the 6 x 12 construction employed as messenger wire, fish tackles and gilsons, and of the 6 x 6 combination construction used as head lines and fishing lines.

Our engineers have long recognized how advantageous it would be to rope life if deck gear such as winch drums, bollards and gallows sheaves could be of larger diameters. In wire rope engineering, it is a fact that ropes of the 6 x 19 classification should not be required to work over sheaves of less than thirty times the rope diameter. Bollard and gallows sheaves of 16-inch and 12-inch diameter, standard equipment of the larger vessels, are far from adequate from the point of view of wire rope engineers. If the double 90 degree bends occurring in the travel of the main line between the winch and the aft gallows frame could be eliminated, wire rope engineers would be happier people. And if all vessels, by the waving of some magic wand, were suddenly equipped with electric driven winches in place of the clutch and friction brake drives, smoothness of operation would go far in preventing maximum acceleration and deceleration so deadly to the long life originally built into a rope.

As practical men, however, we realize that a change of this nature entailing the replacement of conventional gear of standard design is manifestly impossible from a viewpoint of cost, space limitations, and supply availability. Therefore, as manufacturers of trawl lines, we have made extensive investigation and given time and study to the problem of constructing rope best suited to existing conditions aboard fishing vessels.

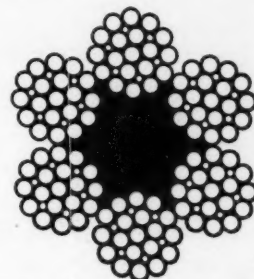
These studies and our long experience in building various types of wires have shown us that strand construction for ropes of the 6 x 19 classification of different diameters, must, of necessity, have different wire patterns. The reason for this is that ropes of increasingly larger diameters of the same wire pattern become exceedingly stiff and lose their ability to withstand the continual bending fatigue caused by working around bollard and gallow sheaves, quickly porcupining to the point where the line would not render satisfaction.

It was apparent then to us that a combination or blending of various sizes of wires in a strand was necessary, and that they be so patterned as to give sufficient flexibility to withstand the constant and continual bending around small sheaves, and yet have great enough steel area to be able to withstand the severe abrasive conditions present.

We therefore manufacture our 6 x 19 classification special galvanized trawling ropes in three different patterns to meet the severe conditions encountered in service. In the small diameters of these ropes a 6 x 17 - 2 operation construction is used, in the generally employed diameters a 6 x 16 filler wire (also called 6 x 21 filler wire), and in the larger diameters of rope we use a 6 x 19 filler wire (also called 6 x 25 filler wire) construction. These specific 6 x 19 trawl rope patterns, designed by our Engineering

Department and incorporated in the ropes supplied to the trade, have ably proven the worth and the soundness of our reasoning in their ability to withstand the utmost in bending fatigue as well as resistance to crushing and wear. These patterns are illustrated in the accompanying cross section cuts.

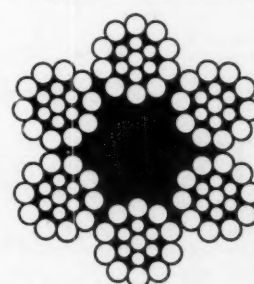
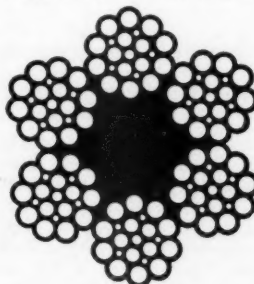
6 x 19 classification
special galvanized
trawling ropes.



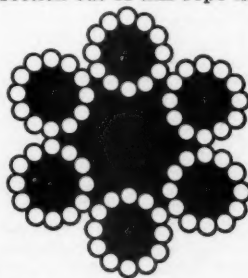
At right, 6 x 19 (6 x 25) filler wire.

Below, 6 x 16 (6 x 21) filler wire.

Below, 6 x 17 — 2 operation.



Running gear, such as the messenger, gilson, and fish tackle wires where maximum flexibility is paramount are made of the 6 x 12 construction. This latter construction, by combining steel with a large amount of hemp provides a rope which has much added strength but still retains a great deal of the flexibility of a pure hemp rope. A cross section cut of this rope is shown.



6 x 12 galvanized rope. It has 6 strands, 12 wires per strand, 1 fiber core, 6 fiber centers.

Tarred manila 6 x 6 combination rope has to a greater and greater extent replaced hemp rope, formerly used for head lines and fishing lines, and a most important component of the trawl. In the past it was found that hemp core for these lines had a distinct tendency to stretch and was easily chafed. With the introduction of combination rope the inclusion of steel wires eliminated the stretch problem. However, as first manufactured, the untarred covering continued to allow water absorption causing swelling of the fibers with attendant susceptibility to chafe and breakdown. An improvement in manufacture by the addition of tar and copper compound to the manila

(Continued on page 48)

* Sales Representative and Wire Rope Sales Engineer respectively of Wickwire Spencer Steel Division, The Colorado Fuel & Iron Corporation.



The 78' shrimp trawler and freezer ship "Johns Pass", owned by the Johns Pass Fish Co., Johns Pass, Fla. At right is her skipper, Capt. F. L. Routh of Madeira Beach, Fla. Built by the Sarris Boat Works at Tarpon Springs, Fla., the vessel is powered by a Caterpillar D13000 Diesel with 48 x 44 Columbian propeller and 3:1 Snow-Nabstedt reduction gear.

"Johns Pass" Combines Trawling and Freezing

New Vessel Makes First Trip to Campeche, Mexico Shrimp Banks

THE *Johns Pass*, newly-constructed flagship of the Johns Pass Fish Company's Florida shrimping fleet, recently made her initial voyage, going to the Campeche, Mexico banks. The shrimp trawler and freezer ship is 78' long and has a beam of 23' and draft of 6½'. She was built for Charles C. Rice, owner of the Johns Pass Fish Co., Johns Pass, Fla., by the Sarris Boat Works at Tarpon Springs, and her lines follow those of the sponge boats. The vessel, which was launched in January, is exceptionally well equipped for her work.

As the Florida shrimp industry grew from a catch of 72,000 lbs. in 1880 to 30,000,000 lbs. in 1950, Rice sought to capture this market for St. Petersburg's Gulf Beaches. Because of poor facilities, it was impossible to lure other shrimp boats in, so he set about to build a large shrimp boat with shallow draft which could negotiate the dangerously shallow waters of Johns Pass. The result was the new trawler and freezer ship *Johns Pass*, which was built entirely on Rice's ideas and plans from keel to masthead.

The *Johns Pass* is skippered by Capt. F. L. Routh of Madeira Beach, Fla. who, for several years was skipper of the 75' *Avenger*, another trawler owned by the Johns Pass Fish Co. Mrs. Routh has joined up to officiate as galley chief. She finds seafaring to her liking and has made a number of trips on the *Avenger*. Son Robert is also a "hand." The new vessel's crew of six will be kept comfortable with well appointed living quarters, including hot fresh water showers and other luxuries usually not installed on shrimp trawlers.

In order to be able to cruise for 60 days or longer, the *Johns Pass* will carry 5,900 gallons of fuel oil and 5,000 gallons of water. The vessel has space in the holding room for 70,000 lbs. of frozen shrimp. Together with a fleet of four trawlers, a cargo of 100,000 lbs. could conceivably be landed at one time.

The new vessel can make four or five trawls a night, and net from 1,000 to 1,500 lbs. of beheaded shrimp. The shrimp are beheaded as they come on deck. Together with the trash fish, this residue is thrown overboard. After the shrimp are washed in sea water they are put in boxes and quick frozen. Then they are stored in the refrigerated hold.

Freezing Apparatus

The vessel's freezing apparatus is of Carrier make and employs three compressors of 15, 10 and 5 hp., respectively. Owens Fiberglas was installed as insulation for the refrigerating section, which has the quick-freezing compartment in the aft cabin at deck level and the holding room below deck.

The freezing plates are set for 25 degrees below zero F., and a 5 degree above zero temperature will prevail in the holding section. Capacity of the freezer is notably large. It can freeze 2,000 lbs. of shrimp every four hours. The frozen shrimp are packed in 5-pound cartons ready for distribution.

The power plant of the *Johns Pass* is a Caterpillar D13000 Diesel which turns 48 x 44, four-blade Columbian propeller through 3:1 Snow-Nabstedt reduction gear to give a cruising speed of 10 knots.

Navigational equipment includes a Bendix depth recorder, a Metal Marine automatic pilot and a Loran set. A two-way radiotelephone with eight channels and 250-watt power makes it possible for the skipper to communicate with headquarters at Johns Pass and with the other trawlers of the Rice fleet, including the *Avenger* and Dr. E. J. Whelan. Electric power is furnished by a 40 kw. Caterpillar Diesel generating set which develops 110-220 volts a.c. A Hathaway hoist raises and lowers the nets, and there is a Northill anchor.

If the new factory ship maintains the volume hoped for, between one and two million pounds of shrimp will pass through the Rice fishing organization alone.

Injuries to Small Lobsters Reduced By Wider Spacing of Laths in Traps

After several years of experiment biologists of the Maine Department of Sea and Shore Fisheries have found that much of the loss which results from handling lobsters can be offset by a change of the spacing of the trap laths. This would permit about 75% of the short lobsters to escape.

Research has shown that short lobsters, or those under legal size of 3¼" body shell length, after being caught in a trap, stick their claws through the lath spacing. In the process of being hauled from the bottom by the fisherman the claws very often are broken off. Even though these lobsters are returned to the bottom and live to be caught again they will be culls which reduces their value considerably. If the lobsters are not damaged in the hauling process, they may be when the fisherman tries to remove their tightly-wedged claws from between the laths.

In order to find a solution to this problem, the Department made tests comparing traps having 1¼" lath spaces

with those having 1 3/4" spaces. All of these tests were made under actual fishing conditions and were conducted with the help of experienced fishermen.

Two of the fishermen who assisted in the experiment were Leonard Waite of Newagen and Chester Carter of Medomak. Waite has a string of 140 traps and all have the wide-spaced laths except on the bottom. After fishing these traps for a season Waite found that the new construction saved considerable time because there were fewer short lobsters in the traps to take out and throw overboard. Crabs, which are usually a great nuisance to the lobster fisherman, were very seldom found in the traps. Waite plans to continue fishing with the wide lath space trap.

Chester Carter fishes 120 traps with the wide spacing along the sill. He also said he caught fewer short lobsters and was enthusiastic about the method because he saved time in not having to measure a lot of small lobsters.

Department biologists point out lighter weight because of fewer laths as another advantage of the trap. The lighter weight trap needs less ballast and is easier to handle.

New Jersey Commission Seeks To Protect Striped Bass

New Jersey's State Fish & Game Commission voted on February 12 to seek the enactment of State legislation designed to protect striped bass by changing the start of the commercial shad fishing season for staked gill netters and gill haul seiners to March 1.

Action was taken by the council after it had been revealed that 85,555 lbs. of New Jersey striped bass, but not one pound of shad, had been received on the New York market from the shad season's start on February 1 through February 9.

Belief was expressed that by March 1, the wintering semi-dormant schools of bass in the Mullica River-Great Bay area, where the kill had been made, would be on the move and that the kill following that date would be less than under the present February 1 through April season.

In another move the council favored a proposal to reduce the mandatory lift period of shad nets in the Hudson River from 72 to 60 hours.

Fishermen Discuss Crab and Oyster Laws

The Commercial Fishermen, Trappers and Land Owners Association held a special meeting in Corbin last month, at which Augustus Hickman, director of the Board of Shell Fisheries, was asked about the taking of crabs by mechanical power. He made it clear that in the inland waters along the Atlantic coast, crabs could be taken legally, but crabs could not be caught by mechanical



The 46' x 12' x 4' party boat "Phyllis Kay", owned by William R. Faulkner of Bowers, Del. She has 18 x 10 Columbian propeller, and is painted with International paint.



Captains W. Allen and Roswell P. Flower are in command of the 50' x 16' x 3'6" oyster dredge "Ida May", which operates out of Bayville, N. Y., and has a capacity of 600 bu. Owned by Frank M. Flower and Sons, she is powered with a D318, 80 hp. Caterpillar Diesel which turns 28 x 20 Columbian propeller through 2:1 Twin Disc reduction gear. Other equipment includes Danforth anchor, American Steel & Wire Co. cable, and Columbian rope.

power in the Delaware Bay except on leased bottom, and by the parties holding the lease.

The question of tonging oysters in the various creeks and rivers in the Delaware Bay area was discussed. A 3-inch law prevails governing the taking of oysters in Dennis Creek and Bidwell's Creek. Some members thought this unfair because in other creeks and rivers tongers are allowed to take and sell oysters of any size for plants.

New York Legislature Passes Bill Increasing Lobster Size

The State Legislature has passed a lobster bill which makes it illegal to possess lobsters measuring less than 3 3/16 inches, and after December first the size increases to 3 3/4 inches.

A bill to prohibit dragging within one mile from the shore from the breakwater at Rockaway Point to the jetty at East Rockaway Inlet has been re-introduced by Assemblyman Fox of Arverne. This bill has been successfully opposed by commercial fishermen in the past.

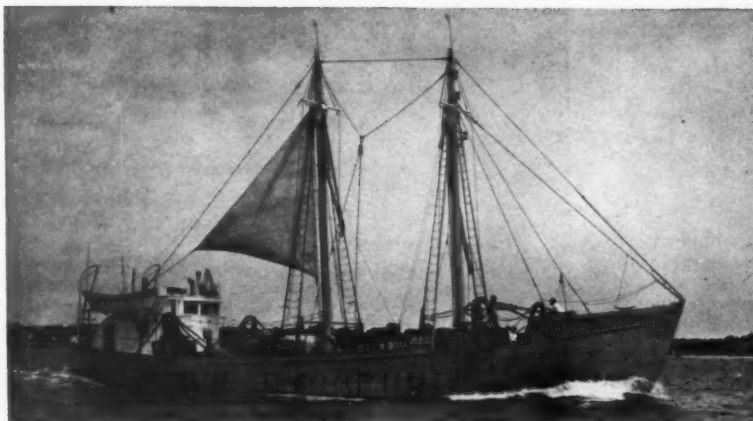
The Smithtown Bay bill prohibits the taking of shellfish in excess of two pecks per day by any person for a distance of 1000 feet from the shore, measured from the highwater mark, from June 1 through September 15th. This bill was endorsed by the clammers in the area.

Two other bills which it is believed by the Long Island Fishermen's Association are aimed at the commercial fishing industry on Long Island have been introduced. They are the Horton weakfish bill which would eliminate haul seining in the Peconics and the striped bass bill which reads that striped bass may be taken only by hook and line.

The Greenport Board of Trustees, meeting on February 23, adopted a resolution opposing the bill which would prohibit the use of haul seines.

Mervin R. Smith

Mervin R. Smith, more familiarly known as "Decker", died on February 23 in Freeport after a long illness. Mr. Smith was the son of the late Capt. Abe Smith, who maintained an oyster house where baymen and numerous prominent residents of Freeport used to gather. "Decker" Smith and his father were at one time engaged in the oyster business, and owned an oyster dredge which was named *Decker*.



The 103' groundfish dragger "Emily Brown", owned by B & B Trawling Co., Gloucester. She is skippered by Capt. Ivan Williams and fits out at the Sherman B. Ruth Inc. wharf. Equipment includes 400 hp. Atlas Diesel, Surrette batteries, Sperry Ioran, 75-watt RCA telephone, Raytheon Fathometer. Esso fuel and lube oil are used.

Boston Landings Low During January Due to Bad Weather

In January a total of 9,878,250 lbs. of fresh fish valued at \$1,109,222 was landed at the Boston Fish Pier and sold over the New England Fish Exchange. This was an increase of 27% in volume when compared with December, 1951, but a decrease of 13% below January, 1951 landings.

Supplies were generally light to moderate, demand was moderate to good, and the market about steady. Prices were at a very high level the first of the month but tapered off considerably to a more normal level as the month progressed. The total monthly average was 1% below December, but 34% higher than January, 1951.

Poor weather at sea and meager haddock fishing on Georges Bank combined to keep landings at a low level during the first half of the month. Production increased substantially as the weather improved and the offshore fleet shifted operations to the western banks. Good haddock catches were made on these banks.

Large haddock was the leading item landed, the first time since last Spring. Scrod haddock followed with pollock close behind. Landings of cod and flounders continued light.

The 99 trips landed by the large otter trawlers had an average catch of 71,460 lbs. per trip, compared with 87 trips in January, 1951 that averaged 107,450 lbs.

A total of 181 trips was landed by inshore boats with a catch of 1,253,800 lbs. compared with 209 trips in January, 1951 that yielded a total of 776,050 lbs. The inshore fleet was confined by the weather to short trips close to shore. Pollock was the leading species landed by the inshore boats followed by haddock, cod, and ocean perch in that order.

Get New Batteries

The *Mary & Josephine*, owned by Producers Fish Co., of Gloucester, has been equipped with 114-volt, 440 amp. hr. Bowers MLL-25 marine batteries. A set of 112-volt, 367 amp. hr. Bowers MLL-21 has been put aboard the United Fisheries dragger *Paul Howard* of Gloucester.

Another Gloucester dragger, the *Frances L. McPherson*, operated by Cape Ann Machine Co., has a new set of 112-volt Bowers MS8R-21 batteries. A similar type set was recently installed on the *Louise*, operated by Fulham Bros. of Portland.

Two 60' Boston draggers have been equipped with 32-volt Bowers MLL-21 batteries. They are the *St. Francis*, owned by Capt. Bertolino; and the *Victory*, owned by Capt. Boudreau.

Distribution of Bowers marine batteries from St. Johns,

Newfoundland, to New London, Conn., is being handled by Tracy Yacht Basin, Inc. of Dorchester, Mass. Victor R. Tracy is president of the firm, and Philip V. Pfeiffer is sales manager. The complete Bowers marine battery line will be available through local dealers, and the following concerns already have been appointed as sales and service outlets: Burke's Diesel Service, Gloucester; Cape Engine Co., Plymouth; Harbor Marine Service, Commercial Wharf, Boston; Deleco Corp., East Boston; Nap. J. Hudon, Boston Fish Pier.

New Engine for Lobster Plant

Burrough's Seafood Co., Foster's Wharf, Boston, has installed a new Model B2 Petter Diesel for pumping salt water through its lobster tanks. Sold by Atlantic Equipment Co. of Readville, the engine is an 18 hp., 2 cylinder, radiator cooled model.

Best Day's Landings of Winter

Boston Fish Pier had its best day of the Winter on February 4 at market opening when a fleet of 35 boats accounted for 1,765,700 lbs. fresh fish. A total of 666,000 lbs. of haddock was included in the catch, and the bulk of this sold for 10½¢ a pound.

Other receipts included 370,000 lbs. haddock scrod, 86,800 lbs. cod, 56,000 lbs. ocean perch, 87,000 lbs. pollock, 151,000 lbs. grey sole, and 348,900 lbs. mixed fish. The fleet included eight trawlers, four large draggers, 12 small draggers and 11 small trawlers.

Biggest trip landed was that of the *Bonnie*, which totalled 172,200 lbs., and included 70,000 haddock, 55,000 scrod, 12,000 cod, 22,000 sole, and 13,200 mixed fish.

Gloucester Loses Two Of Its Draggers

Seven Gloucester fishermen were stranded on Roseway Island near Shelburne, N. S., last month after their 49-year-old, 101-ft. dragger *Mary F. Curtis* had run hard aground in a blinding snowstorm and become a total loss. The *Mary F. Curtis* was launched at Essex in 1903 as a dory trawler. She spent her Summers mackerel seining out of Gloucester, and for many years Capt. Dave Keating was her skipper. The craft was sold in 1939 to her present owners, Mrs. Philip Giamanco, wife of the skipper, and Mrs. Rose Frontiero, who had the boat converted into a dragger.

Three Gloucester fishermen, forced to take to their dory after their 48-ft. fishing dragger *Mary Alice* had filled and sunk six miles northeast of Thatcher's on February 26, were rescued an hour or so later by the 70-ft. dragger *St. Francis*. The latter boat was attracted to the survivors by the rays from a flashlight held by the sunken boat's owner-skipper, Capt. John M. Francis, Jr.

Best Southern Trip of Season

Weighouts at Fulton Market on February 4 included that of the Gloucester dragger *Edith L. Boudreau* with 82,680 lbs. of fish, best trip of the season for a Gloucester boat at any southern port. They had 41,700 lbs. scup and 35,200 lbs. butterfish.

Dragger "Minkette" Repowered

The 50' dragger *Minkette*, owned by Fur Fisheries Inc. of Gloucester and skippered by Capt. Harry Shields, has been equipped with a 6 cylinder, 165 hp. GM rebuilt Diesel, sold by Atlantic Equipment Co. of Readville, Mass.

Great Lakes Fishermen Making Sizable Smelt Catches

Commercial fish production from the Great Lakes during February was, generally, light; but commercial smelt netters made good catches of the little silvery fish.

In Lake Superior, much of the netting operations were conducted through bay ice. However, even in February a vast area of open water was noted beyond the floating ice, encouraging commercial netters to sustain open-water fishing activity.

Gill-net and trap-net fishermen operating on Minnesota, Wisconsin and Michigan ice made light to fair catches of lake trout and light hauls of whitefish. Fewer lamprey marks were reported on lake trout and the marks, in virtually every case, had healed. However, fishermen contend that sea lampreys are still present and may be lying dormant due to the frigid water.

In the Green Bay area of Lake Michigan commercial fishing operations during February were confined almost entirely to ice fishing. Smelt production from Little and Big Bays de Noc, which started as early as Christmas, has been good. Also reported were good catches of whitefish, mullet, perch and pike. At Escanaba, Mich., 20,000 lbs. of smelt were being landed daily.

On Lake Michigan, commercial fishing, except for smelt, chubs and whitefish, was generally light. Between Cheboygan and Rogers City, Mich., smelt and sucker catches were up; but otherwise hauls were small.

Saginaw Bay ice fishermen got fairly good catches of smelt, perch, mullet and some whitefish. Lake Huron fishing, generally, however, ran from poor to light.

Lake Erie fishing operations were generally light early in February, but some nice whitefish and pike catches were made.

Asks for More Sea Lamprey Funds

Rep. Charles Potter of Michigan has asked Congress, which already has appropriated \$700,000 toward ridding the Great Lakes of the predator sea lamprey, for another \$446,000 to carry on the work. The funds are to be used by the Fish & Wildlife Service.

A newly-discovered poison which may prove valuable in ridding the Great Lakes of sea lampreys was reported on at a meeting of the Ontario Federation of Commercial Fishermen in Toronto. The poison is said to be capable of killing lamprey larvae, but will not harm fish.

Michigan Catch for 1951 Shows Gain

The total catch of fish by commercial fishermen in 1951 from Michigan waters of the Great Lakes amounted to 25,000,000 lbs., nearly 2,000,000 lbs. more than 1950's annual haul, according to a report by the Michigan Conservation Department. The haul, however, was still below the average of 26,000,000 lbs. a year.

Herring was the leading variety, accounting for 8,913,000 lbs. of the total, compared with 6,871,000 lbs. in 1950.

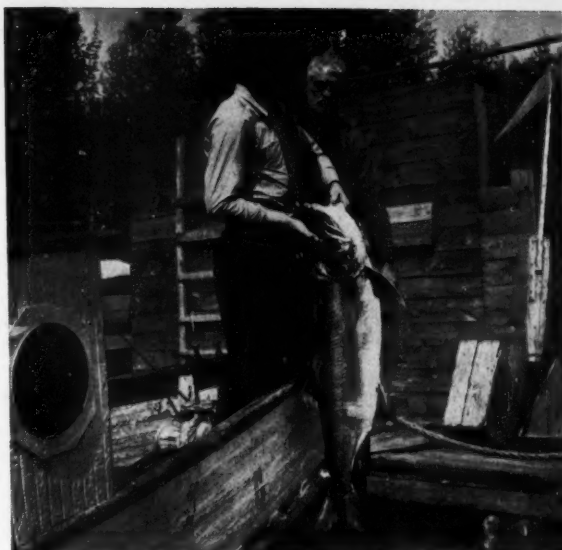
Chubs moved up to second place, with a total of 2,944,000 lbs., compared to 2,427,000 lbs. in 1950, when this species was third on the production chart. Smelt, gaining impetus, leaped to third place with a total catch of 2,661,000 lbs. In 1950, smelt was seventh.

Whitefish production declined from second to seventh place with only 1,358,000 lbs., compared with 2,725,000 lbs. a year earlier.

The prized lake trout fell another notch from fourth to fifth place, with a total of 1,358,000 lbs. The take in 1950 amounted to 2,725,000. All but 3,200 lbs. of the 1951 haul were taken in Lake Superior.

Tagged Sea Lampreys Released

Members of the U. S. Fish & Wildlife Service's Hammond Bay Fishery Laboratory are releasing tagged sea lampreys in the Straits of Mackinac near Cheboygan,



Fred Matson of Munising, Mich., holding a granddaddy lake trout taken from Lake Superior, with Matson's father, Charles, in the background. The Matsons are commercial fishermen who charter their boat in Summer for sport trolling.

Mich., in order to obtain information on their movements and habits.

Two types of tags mark these lampreys: The first type is a red disc and a white disc fastened by a nickel pin to the back of the lamprey just in front of the dorsal fin. The second kind of tag being used is a single oblong disc secured to the back of the lamprey by a piece of nylon net twine.

Fishermen who catch lampreys with a tag attached are urged to send information as to date, exact location, and method of capture, and any other details to the Hammond Bay Fishery Laboratory, P. O. Box 28, Rogers City, Mich.

Brey Heads Munising-Lake Superior Trollers

Henry Brey, Munising, Mich. commercial troller, was named president of the Munising-Lake Superior Trollers Association for 1952 at its annual meeting in Munising recently. Brey succeeds Frank Carr. Oliver Froberg was elected vice-president, and William P. Wilson was named secretary-treasurer of the Association.

Good Catches of Sturgeon

From Burt and Mullet Lakes, connective of Lake Huron through Cheboygan River, several good catches of sturgeon have been made recently. These lakes, for some unaccountable reason, appear to be the favorite grounds for the sturgeon. The biggest sturgeon taken from Mullet Lake this year was caught by George Lotan, Flint, Mich., and weighed 125 lbs.

A 178-lb., seven-foot sturgeon recently was taken in a gill net from Big Bay de Noc, Lake Michigan, by George Boudreau of Garden, Mich. Conservation officers believe this is a record catch of sturgeon for the Upper Peninsula.

Swaer Takes Over Midwest Fish Company

Midwest Fish Co. of Green Bay, Wis., was recently purchased from the Nathan Fisher family by Arthur Swaer of Pensaukee, Wis., a commercial fish producer and wholesaler. For more than 25 years Swaer has been engaged in fisheries operations. He owns fisheries at Oconto and Pensaukee, Wis., the Schilling Fish Co., Green Bay, Wis., and is president of the Bond Fish Co., Winnipeg, Manitoba.

The sale of Midwest Fish Co. brings to an end a 47-year career in the fish business in Green Bay for Nathan Fisher.



The 70' x 20' x 7' "El Rancho" as she appeared at the recent Blessing of the Fleet in Aransas Pass, Texas. Owned by C. O. Robert of Aransas Pass, she was built in 1949 by Conrad Industries, Morgan City, La. The shrimper is Caterpillar-powered, and other equipment includes Stroudsburg hoist, Submarine Signal depth recorder and RCA direction finder.

Texas Seafood Plant Operator Invents Shrimp Grader

P. A. Bradshaw of Aransas Pass has patented a successful shrimp grader, after working on the project for ten years. It is claimed that the machine, which is simple in construction, will sort all sizes from jumbos to small cocktail shrimp without waste at a rate of 6,000 lbs. an hour, and does the work equivalent to 15 or 20 headers. Mr. Bradshaw will manufacture the machines, which will be put out on a lease-basis to freezer plants.

Mr. Bradshaw operated shrimp boats out of Port Lavaca and Port O'Connor for 18 years. He moved to Aransas Pass and operated a fish house of his own for two seasons, then took over the management of the T & T Fish Co. in 1948.

Shrimp Yield Good Despite Weather

Shrimp landings in Texas ports during February were good considering the rough weather. At the four principal ports, 21,300 barrels were unloaded. Port Isabel-Brownsville led with 16,020 barrels; Aransas Pass had 3,358 barrels; while Galveston and Port Lavaca furnished the remainder. The Port Isabel-Brownsville section reported 10,000 lbs. of snapper, and 8,500 lbs. of reds, trout, and drum. The Port Lavaca area reported 444 barrels of oysters.

The ban on large shrimp trawlers in the bays and inland waters of Texas was lifted March 1. Since December 15 the bays have been closed to all shrimping except bait boats with trawls not exceeding 10' in width.

Returns from Tagging Program Small

Only a small percentage of the tags placed on fish released by the Texas Game and Fish Commission have been returned, according to Ernest Simmons, biologist in charge of the experiment. Of 1,368 trout tagged by the Commission crew, only three per cent, or about 40, have been recovered. Of 835 redfish tagged, some seven percent of the tags have been turned in. Sixty-nine croakers tagged are entirely unaccounted for, and only one and one-half percent of the 755 tagged drum have been heard from.

Thirteen months after tagging, a drum which originally weighed four pounds was caught by a fisherman 40 miles from where the tagging took place. The drum was three inches longer than when tagged, and had gained fifty percent in weight.

Redfish are travelers, some migrating more than a hundred miles during a few days' time. One fish made 113 miles in 13 days, while others stayed near the area where they were tagged.

No flounder tags have been recovered. There is a prob-

ability that this is due to the fact that most fish on the Texas coast are taken in shallow water, and it is known that flounders migrate to deep Gulf water to spawn from November to March.

The conservation crew is working in the area of the newly-opened Yarbrough Pass which traverses Padre Island. The tagging experiment is scheduled to continue through the years 1952 and 1953, and the biologists hope that with the cooperation of the fishermen, some important points on fish migration will be cleared up.

Grounded Trawler Rescued by House Mover

The shrimp trawler *Pike*, which went aground on the jetties of Brazos-Santiago Pass, was ready for launching February 8 after a 36-hour "overland" rescue operation.

A house mover, using two half-track caterpillars operated by a taxi service, loaded the *Pike* on dollies and hauled her three-quarters of a mile across Padre Island from the Gulf to the Laguna Madre Bay shore. The vessel was hauled overland to the bay to avoid launching her in a pounding Gulf surf.

Activities of Research Vessel "Alaska"

In a recent cruise, the Fish & Wildlife Service's biological research vessel *Alaska*, based at Galveston, Tex., covered the central, southeastern and mid-eastern Gulf of Mexico including the Yucatan and Florida Straits, as a continuation of their study of the physical, chemical and biological conditions of the Gulf of Mexico. Forty-two of the scheduled forty-nine stations, at depths from 14 to 1900 fathoms, were occupied.

Crawford Heads Shrimp Association

The Texas Shrimp Association held its annual election February 15 in Brownsville, and Carlton Crawford was elected as the new president. Other officers elected were R. T. Mackenzie, vice-president; Norville Jackson, secretary; and John Faubion, treasurer.

Los Angeles to Be Site of National Fisheries Convention, April 21-24

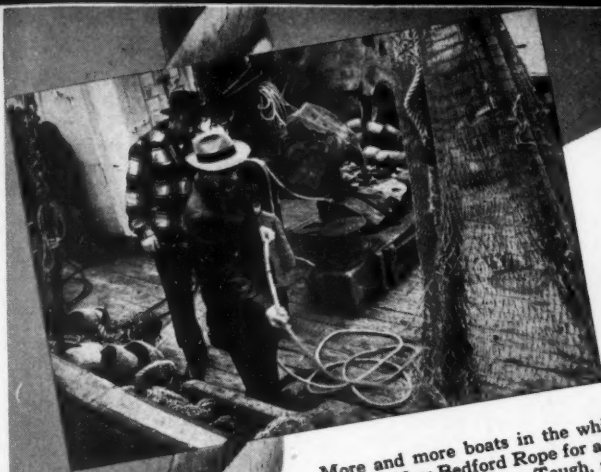
A packaging forum, an exhibit of packaged fish, and a breaded shrimp clinic will be features of the seventh annual National Fisheries Institute convention. This meeting, which 800 members of the fishing and allied industries are expected to attend, will open Monday, April 21, at the Hotel Biltmore, Los Angeles, and will close with a California Fish Cioppino Party, Thursday, April 24.

The Packaging Session, scheduled for Tuesday morning, April 22, will have as moderator Arthur Freeman, Freeman Certi-Fresh Foods, Los Angeles. Panel members will be W. S. Jackson, manager, Art Department, Marathon Corporation, New York, who will give an illustrated talk on the elements necessary for good packaging; Bruce Wallace, Fred Todt Co., Los Angeles, who will discuss the place of machines in making packaging fishery products profitable; Walter Skow, head of the Fish and Meat Department of Ralphs Grocery Co., Los Angeles, who will present fish packaging from the retailer's point of view; and a prominent home economist, who will tell what the homemaker thinks of fish and shellfish packages. These talks will be followed by an open discussion about the processing of fishery products.

The principal feature of the Tuesday afternoon sessions will be judging and scoring packaged fillets and shrimp, followed by a breaded shrimp clinic. Frozen food cabinets will be available to exhibitors for display.

On Wednesday morning there will be a meeting of the new board of directors, and election of the national officers. The Shrimp Association of the Americas will meet Wednesday afternoon to discuss quality control and a seal of approval for packaged shrimp.

The Convention Committee is headed by W. Wade Ambrose, Westgate-Sun Harbor Co., San Diego, chairman; and Max Freeman, Freeman Certi-Fresh Foods, Los Angeles, vice-chairman.



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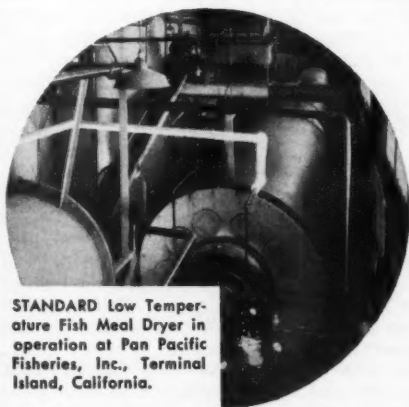
The reason's simple. Tough, sinewy fibres of selected manila are carefully spun to give a proper lay that permits easy handling. New Bedford Rope lasts and lasts, has the extra strength it takes for dependable service in roughest weather. What's more, New Bedford is specially treated for protection against moisture and dry rot, specially lubricated to reduce internal friction.

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Gulf Danger Zone Covering Different Area Now Asked

The Commanding General, Tactical Air Command, U.S.A.F., has made application to establish a danger zone in the Gulf of Mexico offshore from Cameron Parish, Louisiana and Jefferson County, Texas. This proposed danger zone lies in the Gulf of Mexico, approximately 160 miles S. W. of the Alexandria, Louisiana, Municipal Airport and approximately 45 miles offshore from Port Arthur, Texas and Grand Lake, Louisiana. It is to be rectangular in shape, approximately 30 miles by 75 miles with the N.E. and S.W. corners adjusted to clear navigation.

This area presently applied for is in lieu of the area considered at the Public Hearing in Morgan City, La. in December.

Louisiana Shrimpers to Get Higher Prices for Their Catches

The Gulf Coast Shrimp Producers Assoc. announced effective February 15 a new schedule of prices to be paid shrimpers for their catches unloaded at Morgan City, La. area docks. The 15-20 size shrimp now bring \$57.50 a barrel; 21-25 size bring \$52.50; and 26-35 bring \$44.50.

The increase was justified by better market conditions, and it was reported that since the first of the year more than 2,000,000 lbs. of shrimp have been taken out of freezers in the country to cover orders over and above those filled by fresh shrimp, production of which has been good.

Has Contracts for Five Trawlers

Conrad Industries of Morgan City, La. has five new trawlers under contract, and at least five more pending. Oscar Galjour's new boat is about three-quarters complete, and the other four contracts for new construction include a 65-footer for Felix Bruney of Aransas Pass, Texas; a 70-footer for Bill Shepherd and Harold Webster of Aransas Pass, Texas; a 65-footer for Alvah Galloway of Morgan City and Port Isabel, Texas; and a 70-footer for Marion Duzich of Aransas Pass, Texas. The shipyard has been turning out about one of these shrimp boats a month.

Oystermen Organize New Association

At a meeting called on February 26th by Baldo V. Pausina, prominent Louisiana oyster grower, the oyster dealers and growers of Louisiana acted to establish a State association to handle local problems affecting their industry. The group elected Mr. Pausina to serve as temporary chairman and set up a representative committee of the industry to draft a constitution and by-laws.

The organization plans to hold its first general meeting on April 5th. Since the Louisiana Legislature meets in May, it is the hope of the group that they can develop a program of action before that time.

Express Shipments of Seafood Show Gain

Express shipments of seafood out of Morgan City, La. showed an increase in January over December and were greater than January a year ago. A total of 1376 shipments of seafood amounting to 189,300 lbs. were sent out in January of this year, compared to 919 shipments weighing 131,600 lbs. in the same month last year. Every month of 1951 showed an increase in number of shipments and poundage as compared to the same month in 1950.

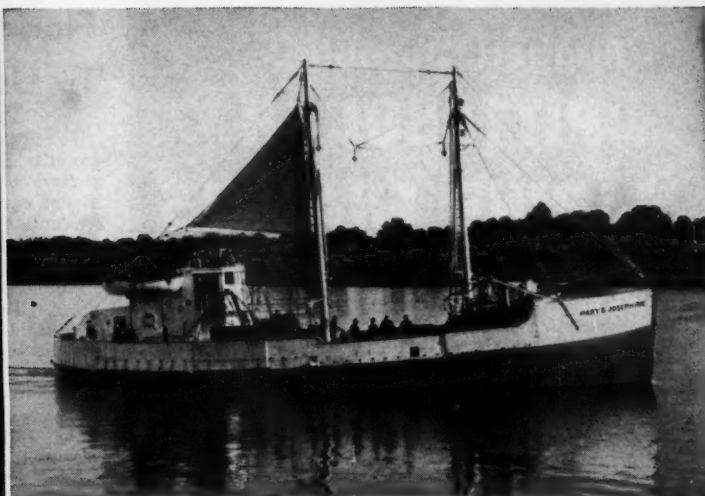
Many fishermen who exchange the hoop net for traps during the fur season each Winter returned to fishing the end of December or early in January because trapping did not pay off, and this accounts largely for the increase

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in production. Normally, January and December are the smallest months of the year in volume of fresh-water fish and crab meat production.

Carl Blum, partner with "Honey" Casso in the fresh and salt-water fish business in Berwick, La., reports an increase in their volume of production in January.

Export Tariff on Shrimp Lowered by Mexico

The export tariff on frozen shrimp has been lowered to 30 centavos per 100 net kilograms, according to information received from Mexico by Harold C. Jackson, New Orleans district manager, U. S. Dept. of Commerce. Jackson said this action would put the Mexican product on a highly competitive basis with Louisiana frozen shrimp.

Mississippi Sea Food Commission Reports Scarcity of Oysters

The Mississippi Sea Food Commission met last month aboard the boat *Uranus* off Pass Christian. Several oyster reefs were inspected and it was reported that there was a scarcity of live oysters.

Present for the meeting were Walter Gex, chairman; Naif Jordan; Walter McVeay; Vinson Smith; Chester Delacruz; Dr. E. A. Hopkins; Col. Dayton L. Robinson of the Pass Christian Chamber of Commerce; Clay Calhoun of the Heartland Trading Co., which has the contract for dredging of old shells; Stanford Morse; Capt. Emile De-Silvey of the *Uranus*; Clarence Canaan, chief inspector; and Tom Moody, inspector.

To Establish Cat Food Plant

The Coast Fisheries Division of the Quaker Oats Co., following several months of study and negotiations with Pascagoula, Miss. authorities, has leased part of the re-

cently constructed warehouse and wharf in the Pascagoula area.

This experimental pilot plant, which will employ about 25 persons, is being put into operation as a feeler for the local possibilities of manufacturing a fish base cat food. The process, company representatives say, is odorless and produces no waste matter.

The new industry will use scrap fish brought in by the shrimpers. It will afford additional income to those fishermen, as formerly the scrap fish were thrown away. Some pogies also will be used, it was indicated.

Increase in Revenue Reported

The Mississippi Sea Food Commission reported recently that due to an increase in taxes on shrimp and oysters, and because they were able to maintain oyster reefs from appropriations, an increase in revenue was realized by the Commission for the biennium ending June 3, 1951.

The "China Seas", 47' shrimper owned by Bourg & Voisin Sea Food Co., Dulac, La., and powered with a 165 hp. General Motors Diesel which turns 32 x 18 Columbian propeller through 2:1 Twin Disc reduction gear. The vessel is painted with International paint, and has Ederer nets and Columbian rope.



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Florida Experimental Shrimper To Use Underwater TV Camera

If an experiment planned by the Gibbs Corp. of Jacksonville and the Fish & Wildlife Service is successful, shrimp boats may be equipped with under-water television cameras. It is hoped to open vast new deep-sea shrimping grounds in the Gulf of Mexico and the Caribbean by this means.

The TV camera, a modified radar device, will be fastened in front of a shrimp net which will be towed by the *Antillas*, a shrimp boat built last year by the Southern Shipbuilding, Inc., of Jacksonville. The viewing screen will be installed in the pilot house.

As the boat moves over the shrimping grounds, the video instrument will pick up the movements of the shrimp schools and the action of the net and its doors. Up in the pilot house, the viewing screen will show the operators what's going on below—some 200 fathoms below. The experimenters hope to find a huge source of supply hitherto virtually untouched at this greater depth.

The boat also will be equipped with other newly developed devices which will be tested during the six-month cruise. These include a variable pitch and reversible propeller for greater maneuverability and a shrimp net which has a cable at the bottom to break snags off the ocean floor and prevent the net from fouling and tearing.

C. B. Carlson, fishing engineer for the Fish & Wildlife Service, was expected to arrive about the middle of last month to supervise the equipment installations.

Lands Heavy Shrimp Catch

The *Clara Singleton* came into Tampa last month with what is believed to be one of the biggest hauls of shrimp ever made on the Atlantic or the Gulf coast seaboard. The ship, operated by Singleton Fish Co., one of the shrimp fleet operators who recently moved his fleet to Tampa, had more than 17,000 lbs. of shrimp packed away in her holds.

The skipper, Capt. Harold Bothewell, was presented with a box of Tampa-made cigars in recognition of the big catch. The presentation was made by Bill Ebsary, president of the Junior Chamber of Commerce, who headed the delegation welcoming the boat.

Big Shrimp Fleet Working out of Key West

It is estimated that there are over 300 shrimp boats operating out of Key West, and the experts say that there is plenty of the "pink gold" to go around. Certain areas, however, are covered with coral and rock formations, making it impossible to fish in these sections. The protected areas serve as breeding grounds, assuring a steady supply of shrimp. The experts say there is no reason to believe that the beds will be exhausted in the foreseeable future.

Want Dock Opened to Fishing Boats

Petitions were circulated around Clearwater last month calling upon the Clearwater City Commission to enact a law opening its municipal dock to commercial fishing boats. A three-man majority on the Commission recently voted to oust commercial fishing boats from the dock. Hardest hit by the ruling was Capt. Bill Meyer's 80-ft. *Sea Fever*, which has berthed there for more than four years. The commissioners want the boats to go to the city's new \$325,000 yacht basin at the beach, which is not filled.

NFI Executive Committee Meets

Some 40 members of the executive committee of the National Fisheries Institute closed a two-day meeting in Jacksonville early last month after discussing industry

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90 mile wind forced closing of Golden Gate Bridge—but my 12-lb. Danforth Anchor held—prevented my heavy 24-foot cruiser from pounding on the beach.

84 mile wind in the Gulf of Mexico—1200 HP tug and converted LST rode it out to two Danforth Anchors. Severe wave conditions—but the Danforths HELD!

120 mile hurricane in Florida—nearly all ships dragged except AMC's equipped with Danforth Anchors. The Danforths held.

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80 mile wind in Connecticut... one dragger did not have an anchor, so TWO sister ships rode to one anchor—the Danforth HELD!

DANFORTH ANCHORS

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problems and laying the groundwork for the National Fisheries Convention April 21-24 in Los Angeles.

Discussions were headed by Royal Toner of Greenport, N. Y., president of the Institute. Committee members came from all sections of the country for the first session ever held in Jacksonville.

Local members attending were Anthony J. Robida, president of Florida Fish Distributors, Inc., and Max Meyer, president of Meyer Fish & Produce Co., regional director of the Institute. A special luncheon guest was Frank D. Fant of Jacksonville, who was president of the U. S. Fisheries Association, forerunner of the present National Fisheries Institute.

Fishing Major Charlotte County Industry

Commercial fishing has been Charlotte County's oldest continuing industry since 1890 and it's still going strong. W. E. Guthrie of the 55-year-old Punta Gorda Fish Co. estimates that his firm's production hits around 2,000,000 to 3,000,000 lbs. a year. Seventy-five percent of all the fish caught by some 150 commercial fishermen operating in Charlotte County are mullet. Other varieties include trout, mixed bottom fish, blues, pompano, mackerel, reds and snook.

The Punta Gorda Fish Co. operates two run boats that take out ice and supplies to nine icing stations and bring back the fishermen's catches. It owns some 70 small fishing boats, skiffs and scows and 25 to 30 launches. The Company also operates a marine railway for pulling out shrimp boats and other craft for repairs and painting.

Another large-scale operator is the Gasparilla Fisheries at Placida, run by W. G. Gault. Production here is around 2,000,000 lbs. a year.

Gasparilla Fisheries has expanded from a modest frame fish house in 1942 to a 9,000 square foot concrete building. The plant has three new holding rooms with automatic thermostat controls. It has its own railroad siding and three branch fish houses at Gasparilla Island, El Jobean and Boca Grande, as well as other small stations. The

Company has 50 or more boats fishing and can accommodate 120,000 lbs. under refrigeration.

A dozen or more shrimp boats make the Campeche and Dry Tortugas runs from their Charlotte Harbor berths. W. J. Parnell of the Parnell Fish Co. estimates that his five shrimp boats bring in approximately 400 boxes of 100 lbs. each a month from Campeche and Tortugas. Capt. Manuel J. Carinhas reports that his boats average around 175 boxes monthly.

Scallop Fishery of North Carolina

(Continued from page 17)

eggs and sperm, which develop into microscopic swimming forms which gradually grow into young scallops. These attach themselves by means of fine threads to blades of grass, seaweed and even adult scallops. The attachment of the young by the fine threads is of great significance in keeping the tiny animals from being washed ashore or carried away to unfavorable areas by the currents or rough weather.

Adult scallops differ from most bivalve forms, such as the oyster and clam, in being able to swim. When the animal is disturbed the shells snap shut so the scallop darts along the bottom. At other times swimming is effected with the animal moving forward as though biting the water. However, there is considerable doubt that scallops migrate for any appreciable distance.

The growth of the scallop is rapid in comparison to the oyster or clam. In North Carolina a marketable size scallop of 3" in diameter may have been growing only one year or even less. According to authorities, most of the marketable scallops of North Carolina are from 12 to 20 months of age. It is believed that few scallops live to be two years of age. As the scallops grow into their second year the growth rate becomes slower, the shell thickens and the muscle which represents the commercial product begins to degenerate.

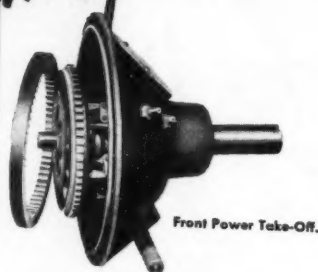
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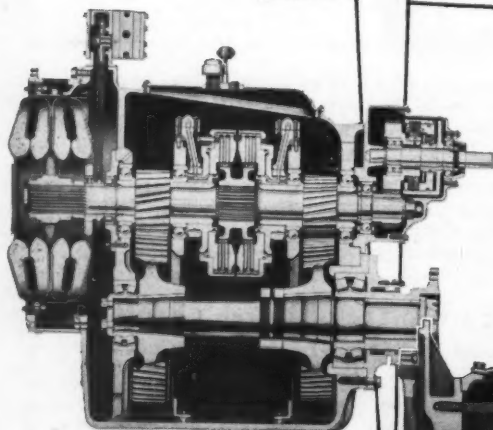
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MG-200	90-175	600-1500
MG-201	120-180	600-1000
MG-175**	85-205	900-2100
MGH-220*	80-230	1200-2100
MG-302**	150-275	600-1500
MGH-340*	150-340	700-1500

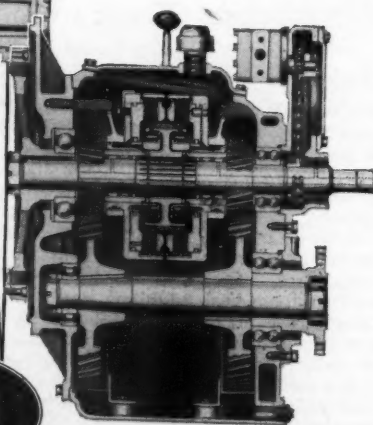
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New Bedford Dragger Lost in Gale

Coast Guard investigation into the loss of the 79' fishing dragger *Paolina* and her seven-man crew was postponed to the first week in March. The Coast Guard said it still had not been able to get in touch with one of the *Paolina's* former crew members, Harold Magnuson of South Dartmouth. Officials said the investigation board wishes to question the former crew member concerning the seaworthiness of the *Paolina*.

The *Paolina* and her crew were lost during a recent gale off Cape Cod. The 125-ft. Coast Guard cutter *Legare*, skippered by Lieut. E. George Hamilton of Bangor, Maine, arrived in port on February 20 with two sections of a lifeboat of the *Paolina*, with the vessel's name on them, and later found a hatch cover and a fish-marker buoy. Those aboard the *Paolina* included Capt. Fritz Hokanson of Acushnet and Armas T. Bagge of New Bedford, co-owners.

Scallop Monopoly Case

Judge George C. Sweeney in Federal Court has allowed in part motions for bills of particulars sought by several New Bedford firms charged with monopolization of the scallop industry.

Judge Sweeney in a memorandum ruled that the motions for bills of particulars filed by the separate defendants were allowed to the extent that the Government shall specify the manner and method used in the alleged "unreasonable restraint" with reference to both the production of scallops and their initial sale. He said that in all other respects, the motions for bills of particulars were denied.

Boat for Warden

A larger boat and better equipment for Frank A. Sylvia, the New Bedford shellfish warden, was recommended by the City Council Shellfish Committee last month. It was suggested that the chairman, Councillor William E. Hall, and the warden confer with the mayor with a view to securing a larger boat that would be available for the use of the warden or for any other purpose required by the city.

Get New Engines

A new 360 hp., 650 rpm., 6 cylinder, 8½ x 10½ turbo charged Wolverine Diesel is being installed in the *Gladys and Mary*. The boat is owned by Capt. Ernest Murley and her skipper, Capt. John McDonald of Nantucket.

The scalloper Bobby & Harvey, owned by Morris Phillips, has been repowered with a new Model WM1197, turbo charged Wolverine

Diesel, rated 225 hp. at 1400 rpm. The 60' dragger *Barbara*, owned by Capt. Risdal is having a WM1197 Wolverine Diesel installed at Kelley's Yard in Fairhaven. The engines were sold by Wm. H. White.

The 65' New Bedford dragger *Irene & Mabel* has been repowered with a new Lathrop DH-200 Diesel, which was installed at the Lathrop dock in Mystic, Conn. The engine is equipped with a Capitol reverse and reduction gear and turns a 48x26 Columbian propeller.

Changes in Ownership

A recent addition to the New Bedford fleet is the 75' scalloper *New Bedford*, owned by Capt. Mike Smith and skippered by Capt. Harry Hicksdale. Formerly the *Gloucester* operated by Capt. Frank Foote of Gloucester, the dragger was completely renovated by Hathaway Machinery Co., Fairhaven. She was rebuilt from the deck line up, getting a new house and steel engine trunk. Her 220 hp. Atlas Diesel and 639B Hathaway winch were reconditioned.

The dragger *Iva M.* which has been operating from Boston and originally fished from Rockland, Me., has been purchased by Capt. Fred Landry and renamed *Roberta Anne*.

Maurice Borden and Andrew Malone of Portsmouth, R. I. have bought the *Babe Sears* from Russell Grinnell, and are having her rigged for dragging.

The *Mary & Julia* has been taken over by Otis Slocum and will be used for scalloping.

"Ursula M. Norton" Repowered

A 400 hp. D397, V-12 Caterpillar Diesel recently was installed in the 84' scallop dragger *Ursula M. Norton*, owned by Capt. Isaac Norton of Edgartown, Mass. The engine swings a 66 x 46 Hyde propeller through a 3.5:1 Falk reverse and deduction gear on a 5½" Tobin bronze shaft, fitted with Hathaway flax-packed stern bearing and stuffing box. A 5 kw. generator is driven off the tail shaft.

Sold by Sid Rideout of Perkins-Milton Co., Boston, and installed at Hathaway Machinery Co., Fairhaven, the new Caterpillar Diesel gives the vessel a speed of 10½ knots. Capt. Benjamin Rasmussen is skipper.

The *Ursula M. Norton* was built in 1944 from Eldredge-McInnis designs and is one of the highliners in the scallop fleet. During repowering, she was fitted with new steel engine trunk, fuel and lube oil tanks, and rigging.

Cape Cod Dragger Damaged in Storm

Anxiety ended on February 19 when Capt. Warren E. Goff of Orleans brought the 60-ft. shellfish

dragger 40 *Fathoms* into Barnstable Harbor after having been missing during the storm of the 17th and 18th.

The pilot house window of the craft was smashed in and all loose deck gear was lost overboard. Sharing in the ordeal with Capt. Goff were Ralph Charlton of Orleans and Fred Carey, Curt Emonds and Jack Poole of Eastham. The vessel is owned by the Birdseye Division of General Foods Corp.

Fishermen's Siren

Kept from harbor by low tide and blinded by a driving snow storm,

eight Orleans and Eastham shellfishermen on four draggers were guided into safety at Rock Harbor last month by the wail of a siren which they and other fishermen installed for this purpose a few months ago.

Safely back in harbor February 21 were C. Francis Richardson of Orleans and "Red" Eldredge of Eastham on the *Dorothy Bell*; Wilton Hopkins of Eastham and Randall C. Fulcher of Orleans on the *Lillian C.*; R. Bruce Hammatt and Harry W. Coulson, both of Orleans on the *Magellan*; and Howard F. Walker and Luther M. Eldredge, both of Eastham, on the *S. Quid*.



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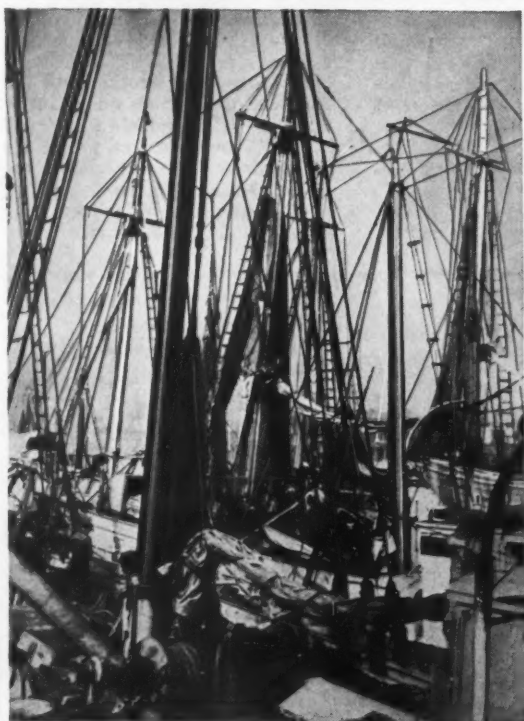
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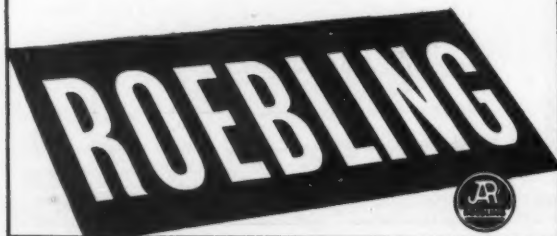


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ROEBLING is the best known name in wire rope. That's partly because we were the first wire rope maker in America. But more than that, we've always led in developing better wire rope for every purpose ashore and afloat.

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Have your Roebing Field Man recommend the *right* rope for every special purpose. Write or call him at the nearest Roebing branch office. John A. Roebing's Sons Company, Trenton 2, New Jersey.



Maryland Advisory Committee Favors Oyster Severance Tax

A revolutionary plan to more than triple public oyster growing in the Chesapeake Bay and tributaries and simultaneously to strike State financial props from under the oyster program was advanced last month. An advisory committee appointed by Gov. McKeldin wants to accomplish both ends by collecting from oystermen a 20-cent tax on every bushel of oysters taken from State waters.

Dr. Charles E. Renn, head of the committee, estimates that State oyster plantings which now average under 300,000 bushels a year can be boosted eventually to 1,000,000 bushels. The \$150,000 State subsidy in the \$250,000 earmarked for oyster propagation in the proposed 1953 budget would be transferred from the shoulders of general taxpayers and placed on the oystermen, who benefit the most. In all, the Renn report looks forward to about \$480,000 annually being spent for oyster growing—all contributed by oystermen.

Immediate opposition was expected from tongers and dredgers, who would continue to pay about \$80,000 in license fees and small taxes, but also would have to shoulder a new \$400,000 tax load in the shape of what the committee calls the 20-cent "severance" tax. The only relief granted them is from a "closed area" tax counted on to produce \$20,000.

Private planters, too, would be called on to pay a 20-cent tax on oysters grown on their leased bottoms but the Renn committee said this money should be used for the production of seed to be sold at cost to the private operators.

In addition to the severance tax plan, the committee also made a variant proposal which would hold the oyster program at the size contemplated in the 1953 budget but would still convert it to a self-supporting basis. This system raises substantially the series of seven license fees and other taxes now paid by the industry to provide some \$220,000 in revenue instead of the present \$100,000.

Increase Seed Oyster Price

The Board of Public Works last month authorized the Tidewater Fisheries Commission to charge 75 cents to \$1 a bushel for seed oysters it sells to private planters. The present price is 20 cents. The additional money will be used for the State's oyster propagation program.

Cull Law Does not Affect Leased Beds

A circuit judge ruled in effect last month that a firm which has leased an oyster bed is not bound by the State's oyster cull law. Judge John B. Gray granted the Patuxent Oyster Co. an order restraining the Tidewater Fisheries Commission from interfering with the company in its operation on its leased oyster beds. The case dates back to last November when Tidewater Fisheries Commission enforcement officials arrested a Patuxent Oyster Co. skipper for violating the oyster cull law.

Crabs in Abundant Supply

The big question on the waterfront since the beginning of the Winter season is what is causing the abundant supply of crabs that are coming into Crisfield from Virginia dredgers. Local watermen and packers believe that the moderate Winters for the past three or four years are the cause of the increase in the supply of crabs.

Last year and the year before at this time the price of crabs by the barrel ranged anywhere from \$8 to \$20. During the past month prices ranged from \$3.50 to \$5, according to local packers.

Capt. William J. Holland, Sr.

Capt. William J. Holland, Sr., 64, one of the Chesapeake's best known watermen, died at the Marine Hospital in Baltimore on February 22. Capt. Holland had followed the water all of his life, and for a number of years owned and operated large power boats which he used for freighting to all parts of the Bay and several Southern States.

Another Big "Cat" in the fishing fleet



The Scallop Dragger "Ursula M. Norton"

Out of New Bedford
Designed by Eldredge-McInnis, Inc.

The photo at the left shows the "Ursula M. Norton" returning from her first trip after re-powering. This scallop dragger is 84 ft. long with a 66 x 46 hyde propeller. It is powered by a 400 H.P. D397 Caterpillar Diesel Engine.



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Rhode Island Closed Season for Striped Bass Seining Proposed

A bill to prohibit seining for striped bass from June 1 to October 31 in fresh water or salt water within three miles of the Rhode Island shore was introduced in the Rhode Island Legislature on February 13 by Rep. John L. Lewis, East Providence, for the Federated Rhode Island Sportsmen's Clubs.

The sportsmen's group has sought unsuccessfully in the past to curb taking the fish by nets close to the shore. Commercial fishermen have fought the proposed legislation.

Another striped bass bill was introduced in the State Senate on February 27. This one prohibits any fisherman from taking bass less than 20-inches long from snout to forked tail. And no one may take or possess more than six of the 20-inch-or-over bass in any one day. Present size limit is 16 inches, and there is no limit on the daily catch.

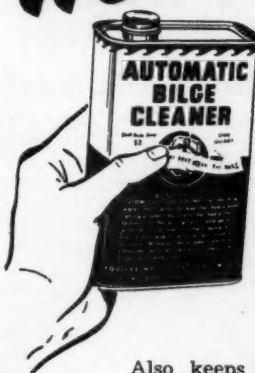
The bill would delete from the present law the prohibition against taking undersized bass from any waters within three miles of the Rhode Island coast. The new bill just applies to waters of the State.

Additional Funds Asked for Law Enforcement

Governor Roberts asked the Legislature last month to appropriate an additional \$2400 for marine patrol in order to have better protection of shellfish areas and more rigid enforcement.

He also recommended that the lobster hatchery at Wickford be closed because it no longer serves a useful purpose. The hatchery, which costs about \$10,000 a year, has been operating on a small scale since much of its equipment was wrecked in the 1938 hurricane.

Here-TRY IT at Our Expense



"If I hadn't used it myself, I'd never believe it!", fishermen say. That's why we want you to try Automatic Bilge Cleaner.

You, too, can have a clean bilge **without any work.** Drop in a few ounces, and let the roll of your boat mix all gasoline, diesel oil, fish gurry, slime and scum with the bilge water. Then just pump it overboard. Keeps the bilge clean as a whistle. Reduces fire hazard.

Also keeps fishhold sanitary. Non-caustic, gentle as a kitten—harmless to hands, paint and fittings.

FREE TRIAL—Send No Money

Order your trial quart today C.O.D. only \$2 (gal. \$7.50) plus postage, (or send check and we pay postage). If it doesn't beat anything you ever saw, return what's left for full refund!

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AUTOMATIC BILGE CLEANER

The Roll of Your



Boat Cleans the Bilge
Dealers: Write for Special Offer

Equipment and Supply Trade News

New "Little Mate" Direction Finder

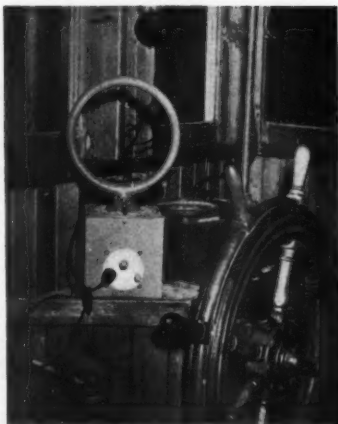
The "Little Mate" Navigator, a compact, light-weight marine radio direction finder, designed especially for use on small craft where space is limited, is being manufactured by Pawtuxet Marine Electronics, 8 Aborn Street, Cranston, R. I.

The elimination of several normally unused controls makes this instrument extremely simple to operate. The use of a superheterodyne circuit with one R.F. stage provides excellent sensitivity and ample selectivity.

The loop is of the "balanced" type, which results in sharp nulls. Cabinet dimensions are 6" x 6" x 6", overall height is 16¼" and weight is 6½ lbs.

The Little Mate comes complete, ready to install. The installation merely requires connecting two wires from the ship's batteries to the terminal posts on the back of the unit.

A special feature, found in the 32-volt model, is that no internal power source, such as batteries, vibra-pack or generator, are used. The 6 and 12 volt models use a small internal "B" battery with sufficient life under normal operating conditions to last six months.



"Little Mate" direction finder aboard dragger "Sandra & Jean", owned by Capt. Warren Northrup, Wakefield, R. I.

Fairbanks-Morse Trophy Won by N. Y. Branch

A new silver trophy for top sales performance in 1951 was presented to T. W. Drennen, manager of the New York branch of Fairbanks, Morse & Co., at a special dinner given recently in the Waldorf-Astoria Hotel. The new Fairbanks-Morse cup, called the Colonel Robert H. Morse Cup in honor of Colonel Morse, Chairman of the Board, was presented by the Colonel to Mr. Drennen and the New York sales organization.

Nineteen years ago Colonel Morse first awarded a trophy called the President's Cup to the Company's branch house which enjoyed the largest volume of sales in relation to its annual quota. During this period of time the President's Cup traveled from coast to coast and to Mexico City. The New York branch won the coveted trophy four times and the President's Cup became so covered with the names of the winners engraved thereon, it became necessary to offer the new cup.

New Nordberg Engine Catalogs

Nordberg Mfg. Co., Milwaukee 1, Wis., has published a comprehensive four-color, 20-page bulletin illustrating and describing the design, operation and application of the five Nordberg gasoline marine engines including the recently introduced 110 hp. high speed Bullet. All of the exclusive engineering and construction features that make the line of Nordberg engines suited to marine power requirements of 95 to 145 hp. are contained in Bulletin 193.

The new bulletin presents outline drawings and charts which give the dimensions of all five engines and horse-

power ratings at both engine and propeller rpm. for direct or reduction gear drive. Also contained in Bulletin 193 are starboard and port side engine views with all parts clearly identified, and a cross section cutaway which shows the operating features of the Nordberg Sta-Nu-Tral clutch and reverse and reduction gear assembly. Presented on a two-page spread are typical installation views of Nordberg powered craft.

Design and operation features of the Nordberg one, two and recently introduced three-cylinder Type 4FS Diesel engines are illustrated and described in a new 12-page, two-color bulletin. The units range from 10 to 45 hp. within an operating speed range of 1200 to 1800 rpm.

Bulletin 194 specifies the compact design features of these engines which make them well suited to the small power user and gives kilowatt ratings and pumping capacities of the various models.

The bulletin illustrates with installation photographs typical applications of 4FS Diesel engines and shows through a cross section view the construction features of these Nordberg units. Also contained in Bulletin 194 are pictures showing all main engine parts and complete specifications.

Edwin Metcalf New Columbian Rope President

Edwin R. Metcalf has been elected president of the Columbian Rope Co., Auburn, N. Y., by the Board of Directors. Harold G. Metcalf was re-elected as chairman of the Board and Col. Stanley W. Metcalf, who has been president, became vice-chairman of the Board of Directors.

The new president was secretary of the Company during 1948 and since then has been president of the Edwin H. Fitler Co. of Philadelphia, a wholly-owned subsidiary of the Columbian Rope Co. During the late war he was director of the Wool, Cordage and Textile Machinery Division of the Textile, Clothing and Leather Bureau, War Production Board.

Col. Stanley W. Metcalf, after serving in World War I, joined the Columbian organization and has been an officer of the Company since 1921. With the exception of the years spent in active duty in World War II, he has occupied the position of president of the Company continuously since 1941.

Rexford L. Morris, vice president-finance, was elected to also fill the office of treasurer of the Company to succeed Francis J. Lesch who is retiring as treasurer but will continue as a director of the Company.

Appointments made at the meeting included the naming of Charles H. Mosher as general sales manager and Gardner P. Dynes as assistant general sales manager.



Left: Edwin R. Metcalf, newly-elected president of Columbian Rope Co. At right is Col. Stanley W. Metcalf, former president, who is now vice-chairman of the Board of Directors.

**3 ways to
reduce
costly
painting
haul-outs!**

Warehouses:

BROOKLYN, N. Y. • PLYMOUTH, N. C. • JACKSONVILLE, FLA. • HOUSTON, TEX.

No need for you to suffer lost fishing time and the added expense of frequent painting haul-outs! Fleet owners have already proved to themselves that superior, super-dependable Woolsey Marine Paints last longer on the job. The next time your boat needs painting, insist on these time and money saving Woolsey quality products:

**WOOLSEY "TRADE WINDS"
Anti-Fouling BOTTOM PAINT**

Its high toxic composition gives excellent fouling resistance. Has a good spreading rate—can be recoated in 3 hours, launched after 4 hours. Easy to apply—moderate in cost.

WOOLSEY SHIP & DECK PAINT

An all-purpose, durable gloss finish for every topside surface. Stands the toughest going on decks and working areas. Solid covering, in all practical colors.

WOOLSEY YACHT WHITES

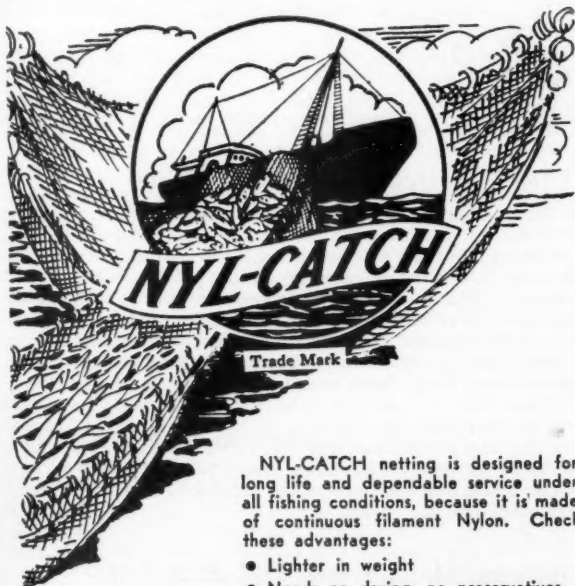
Resists discoloration from gases, fumes and staining. Can be easily scrubbed down. Finish weathers evenly for quickest economical repainting. In gloss, semi-gloss and flat finish.

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**WOOLSEY
MARINE PAINTS**



NYL-CATCH netting is designed for long life and dependable service under all fishing conditions, because it is made of continuous filament Nylon. Check these advantages:

- Lighter in weight
- Needs no drying, no preservatives
- Highly resistant to destructive marine growths
- Not affected by oil or gasoline.

FRONTEL NET & TWINE CORP.

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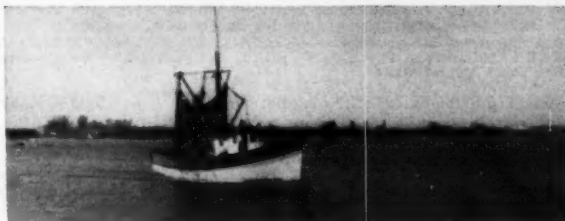
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Catch a boatload with Nyl-Catch Netting

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**W. E. Rittenhouse
of Jacksonville, Fla.**

HE USES PROFITABLE *Lathrop* POWER



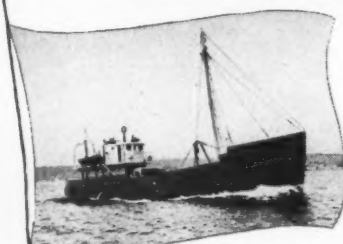
A dependable Lathrop DH-200 DIESEL engine powers his new 65 ft. shrimp trawler, "Three Kids". It is one of several of this type being built by MARINE MOTORS SALES CORP. in Jacksonville. All will be powered by the DH-200, an 187 HP engine with all the latest features.

**Write for new catalog. 19 Different Models,
20-200 HP. Gasoline & Diesel Marine Engines**

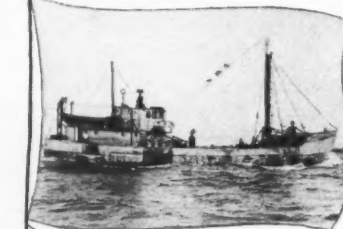


FLEET OPERATORS KNOW

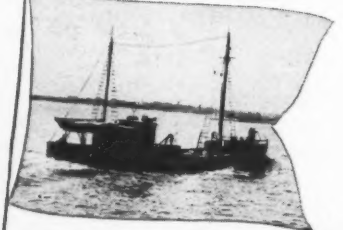
Superior Batteries Count When The Going's Hardest



Lawrence E. McEwen, one of New England's most prominent operators, knows his boats—and his batteries.



Three McEwen-owned draggers out of Gloucester, the 107 ft. Curlew, the 110 ft. Kingfisher, and the 101 ft. Golden Eagle, are equipped with Surrette GTS "Giant" Batteries.



You can take a leaf from Mr. McEwen's log when he says that he's "getting good service from Surrettes"; they've got what it takes for outstanding performance in rugged conditions encountered in North Atlantic fishing operations.

**Extra Value,
Capacity, At
No Extra Cost**

Here's why you should take a sight on Surrette GIANTS:

- **GREATEST CAPACITY IN LEAST SPACE.** No bigger than conventional batteries. Capable of discharge many times their normal 8-hour rate without harm. Capacities to crank diesels up to 1800 H.P., 4 to 120 volts. 240 A.H. to 340 A.H.
- **EXTRA HEAVY POSITIVE PLATES.** $\frac{1}{4}$ " thick. Special REZISTOX type grid for longer life, greater strength and capacity.
- **TRIPLE INSULATION.** Dual rubber special slotted envelopes ALL AROUND positive plates, not just slotted rubber sheets. Microporous, all-rubber separators immune to battery heat. Armored fibre glass separators to prevent loss of active material.
- **SPECIALLY ENGINEERED, SPECIAL MATERIALS, FOR MARINE USE.** Extra heavy fittings, genuine hard rubber containers.

Be guided by the preference of experts. **FINEST BATTERIES AT ANY PRICE. SIZES FOR EVERY BOAT.** Ask your dealer for specification sheet M-1 or write us.

SURRETTE STORAGE BATTERY CO., INC.

SALEM, MASS.

Surrette

MARINE BATTERIES



T. E. Kraner, left, manager of the new Cooper-Bessemer district office at New Orleans, La. At right is his assistant, F. A. Gehres.

Cooper-Bessemer Opens New Orleans Office

Establishment of a regional office at 1410 South Jefferson Davis Parkway, New Orleans, Louisiana, has been announced by The Cooper-Bessemer Corp., Mount Vernon, Ohio. Operating under the direction of T. E. Kraner, branch manager, Cooper-Bessemer's new district facilities will handle all engineering service and sales of Diesel engines for marine applications as well as warehousing service parts for all vessels in the Mississippi River, Gulf Coast area. Working directly with Kraner is F. A. Gehres, assistant branch manager.

Mr. Kraner has been associated with Cooper-Bessemer since 1937. In 1940, he was transferred from the Company's headquarters plant in Mount Vernon, Ohio, to the Washington office to work directly under Charles Cooper. His efforts there were devoted to the application of Diesel engines in naval ships and maritime vessels. From the Washington office he was assigned to Caracas, Venezuela, as branch manager.

F. A. Gehres started his association with Cooper-Bessemer in 1939, and in 1948 was assigned to its district office at Houston, Texas. While working at the Houston office, Mr. Gehres' efforts were directed principally to engineering marine installations in that territory. During the war years, he was stationed at the Navy parts depot in Harrisburg and later served as an officer in the South Pacific.

Fitler Has New Warehouse Facilities

The Edwin H. Fitler Co. has acquired new, modern warehouse facilities at Devereaux and Milnor Street, Philadelphia 24, Pa., one half mile north of their former location, which has been taken over by the Frankford Arsenal. The move into new surroundings, with 15,000 square feet of space, has improved efficiency by speeding up shipments and the administration of sales detail.

For nearly a century, the plants of the Frankford Arsenal and that of Fitler have been located side by side in Philadelphia. With the advent of World War II, and due to the paramount need for expansion, the Frankford Arsenal made plans for taking over the Fitler facilities. However, with cessation of hostilities, such plans were deferred. Now, war in Korea once again has brought about a need for more arsenal space.

Universal Motor Issues 1952 Price List

A new marine motor price list for 1952 has been released by Universal Motor Co., 436 Universal Drive, Oshkosh, Wis. The new prices cover the complete line of Universal marine motors, 1, 2, 4, and 6-cylinder models, both direct and reduction drive, 8 to 145 hp., for inboard marine powered boats from 14' up.

There are important reductions in the prices of several Universal models in the 8, 12, 45, 50, 60, 75, 130, and 145 hp. classes. Ralph G. Klieforth, president of the firm, states that the price reductions have been made possible through economies in manufacturing operations at the factory.

Lives and Livelihoods DEPEND on S-N GEARS



for DEPENDABLE POWER TRANSMISSION

"We take great pride in our boat and equipment," says Frank Ivanovich, an owner of the "Maria Rose." First of the unlimited Alaskan Seiners with S-N Gears, it is now in its 4th year of flawless service. A 150 H.P. Lorimer Diesel, and S-N Gears with superior cone type clutch, was their choice.

for DEPENDABLE MANEUVERING

"For river and towing work, S-N Gears make a boat more dependable than with two-way engines," states Glenn M. Crain, owner of the "Smoky City," Pittsburgh. This stern paddle wheeler's Caterpillar Diesel is complemented by S-N air-controlled Gear that transmits power instantly and simplifies maneuvering.

for DEPENDABLE PERFORMANCE

"Tide work around wharfs makes it necessary to have a dependable reverse gear on our 135 H.P. Murphy Diesel," says R. A. Maclean of Harbor Supply Oil Co., owner of "Portland Gulf." S-N's balanced gear train assures long, trouble-free service under every condition.



MANUAL - HYDRAULIC - AIR-OPERATED GEARS, 4 to 1000 H. P.

The
S N O W - N A B S T E D T
G E A R C O R P O R A T I O N

P. O. Box 1753

Hamden, Conn.



Virginia Commission Wants Annual Survey of Public Rocks

The demand for oysters continues good and the supply of oysters in Virginia has remained fairly adequate, according to the recent biennial report of the Commission of Fisheries of Virginia.

More money is needed for repletion purposes, and the Commission believes there should be an annual survey of the public rocks in order to determine more accurately the location in which shells should be planted for cultch.

The report said Virginia appeared to be one of the few States along the coast in which the oyster supply has remained fairly constant. While production from the public rocks has declined to some extent, yet the yield from oyster planting ground leased to private individuals has continued to increase and has largely offset any decline from the public rocks.

Crew Rescued from Grounded Trawler

Coast Guardsmen rescued the six crewmen of the fishing trawler *Belle Isle* on February 25 after the 110-ft. vessel had run aground northeast of Cape Henry Light. An amphibious "duck" from the Virginia Beach lifeboat station went alongside the ship and took off the men. All were suffering from shock and exposure. Coast Guard officials said the vessel appeared to be a total loss.

Crab Dredging Season Closing

As the crab-dredging season in Virginia drew to an end, the crab fleet was gradually working its way up the Chesapeake from the hibernation grounds near Cape Charles. By the latter part of February, they were dredging on grounds not far below the Virginia-Maryland line on both sides of the Bay, in Lower Tangier Sound and in the mouth of the Potomac River, where they have been catching about 15 barrels to the boat.

Capt. Homer Pruitt found a productive bed near the sunken battleship Texas, six miles southwest of Tangier Light, and in eight hours he took 47 barrels of hard crabs. The news of this find spread, and the fleet of crab dredgers all made good catches, averaging 30 barrels to the boat.

Bills Pertaining to Oysters

Among the bills introduced in the State Senate on February 18 was one which would limit a permit to dredge for oysters to 30 days and allow the State to refuse to issue such permits. Another bill would limit the use of patent tongs for gathering oysters to four months a year.

Oystermen Form New Association

Early last month at Tappahannock courthouse a number of Rappahannock planters and packers met to form the Rappahannock Oyster Planters and Packers Association. The object of this organization is to provide constructive efforts for the betterment of the oyster industry.

Hampton Roads Area Landings

Hampton Roads area fish production during February showed an increase of more than half a million pounds over the same month last year. The catch during this February totalled 3,852,000 lbs., and sea bass accounted for nearly two-thirds of this. Runner-up was scup, with 1,093,000 lbs.

To Start Study of Shad Supply

Fisheries experts will take stock this year of shad supplies in Virginia and Maryland waters. The work will be a major part of a survey by the Fish & Wildlife Service to learn more about the shad.

Plans call for tagging fish in the lower Chesapeake Bay and in the downstream stretches of the James, York, Rappahannock and Potomac Rivers. Volunteer work by fishermen will play an important part in the study.

For any marine purpose . . .

CHRIS-CRAFT MARINE ENGINES

. . . are the world's best buys!



RUGGED Chris-Craft Marine Engines are specially built for marine use. Year after year, they provide superb performance, are economical, dependable, trouble-free. Chris-Craft Marine Engines are available in 60, 95, 105, 130, 131, 145, 158 and 160 h.p. Reduction drives and opposite rotation available for most models. For any marine use, your best marine-engine buy is Chris-Craft!

READ WHAT USERS SAY!



Capt. Haughn

"The outstanding performance of the Ventura's Chris-Craft Marine Engine has convinced me that Chris-Craft is tops for marine power," states Capt. Creighton A. Haughn, skipper of a prominent New England sportsman's 60-ft. sloop, Ventura. "The dependability of this engine has earned my complete confidence! It's compact, too, which is doubly important for an auxiliary. We've never had to use all the power it can produce. In my opinion, there's no better marine engine built than a Chris-Craft!"

Fishermen! Chris-Craft Marine Engines can stand the gaff of tough, commercial operation and give you economical, trouble-free service! Ask your marine dealer, boat yard or boat builder for data, or write for **FREE** catalog.

Chris-Craft

MARINE ENGINE DIVISION

CHRIS-CRAFT CORPORATION, ALGONAC, MICH.

WORLD'S LARGEST BUILDERS OF MARINE PRODUCTS

Fish Landings

For Month of February

Hailing fares. Figure after name indicates number of trips.

GLOUCESTER

Alden (1)	6,000	Little Sam (1)	1,000
American Eagle (3)	19,000	Lois T. (2)	27,000
Anna Guarino (5)	9,500		
Annie (2)	5,500	Madame X (3)	5,600
Annie II (1)	1,000	Madonna (1)	4,000
Anthony & Josephine (5)	12,000	Malena II (2)	3,000
Ave Maria (1)	30,000	Margie & Roy (1)	500
		Margie L. (2)	7,500
Baby Rose (1)	123,000	Maria Immaculata (5)	25,000
Benjamin C. (1)	63,000	Marsala (4)	21,000
B. Estelle Burke (2)	107,000	Mary (4)	7,000
Bonaventure (1)	87,000	Mary E. (2)	1,500
Brookline (1)	110,000	Mary F. Curtis (1)	126,000
		Mary M. (1)	1,000
California (3)	48,000	Mary W. (1)	5,000
Calista D. Morrill (3)	2,000	Michael F. Dinsmore (1)	30,000
Capt. Drum (3)	22,000	Minkette 1st (2)	2,500
Capt. John (1)	7,000	Mother Ann (1)	118,500
Cara Cara (1)	137,000		
Carlo & Vince (3)	19,500	Natale III (1)	14,000
Catherine (1)	500	No More (1)	1,000
Catherine Amirault (1)	145,000	Novelty (4)	6,200
Charlotte M. (1)	75,000	Nyoda (2)	8,500
Chebeague (4)	13,000		
Cigar Joe (5)	61,000	Peggy Bell (1)	1,500
Columbia (1)	136,000	Pilgrim (2)	174,000
Conquest (1)	100,000	Priscilla (1)	1,500
Curlew (2)	365,000	Puritan (2)	209,000
Dartmouth (1)	100,000	Raymonde (1)	20,000
Dawn (2)	3,500	R. Eugene Ashley (2)	51,500
Dolphin (1)	118,000	Rita B. (2)	98,000
Doris F. Amoro (3)	103,000	Ronald & Mary Jane (1)	150,000
Doris H. (1)	1,500	Rose & Lucy (2)	22,000
		Rosemarie (1)	6,500
Eleanor (4)	37,000	Rosie & Gracie (3)	44,000
Eleanor Mae (1)	1,500		
Evelyn A. (1)	1,000	Sacred Heart (5)	9,500
Evelyn G. Sears (1)	30,000	St. Anthony (1)	83,000
		St. John (5)	7,000
Falcon (5)	12,500	St. Mary (5)	41,000
Felicia (1)	160,000	St. Nicholas (1)	93,000
Frances R. (5)	34,500	St. Peter (6)	50,500
Frankie & Jeanne (2)	3,000	St. Peter II (1)	43,000
		St. Providenza (5)	14,500
Gaetano S. (1)	85,000	St. Rosalie (2)	80,000
Gertrude E. (2)	3,500	St. Victoria (3)	132,000
Golden Eagle (2)	275,000	Salvatore (1)	1,000
		Salvatore & Grace (1)	20,000
Hazel B. (1)	90,000	Santa Lucia (4)	9,000
Holy Family (1)	77,000	Santina D. (3)	16,000
Holy Name (6)	45,500	Sebastiana C. (4)	22,000
		Serafina N. (5)	55,000
Ida & Joseph (5)	74,000	Serafina II (5)	64,500
Immaculate Conception (3)	24,000	Skilligolee (1)	39,000
Irma Virginia (1)	500	Sunbeam (1)	30,000
		Sunlight (2)	206,000
Jackie B. (1)	10,000	Superior (1)	80,000
Jackson & Arthur (3)	4,700	Sylvester F. Whalen (1)	103,000
J. B. Junior (5)	42,200		
Jennie & Lucia (1)	10,000	Theresa M. Boudreau (2)	360,000
Johnny Baby (5)	7,200	Trimembral (3)	6,000
Joseph & Lucia (2)	249,000		
Josie II (3)	6,000	Uncle Guy (1)	23,000
June Bride (1)	500		
		Victory (3)	15,000
Killarney (1)	180,000	Viola D. (4)	23,500
Kingfisher (1)	99,000	Virginia Ann (1)	3,500
Linda B. (1)	28,000	White Owl (4)	5,000
Little Flower (6)	41,000	Wild Duck (1)	144,000

PORTLAND

Alice Doughty (2)	53,000	Louise (1)	76,000
Althea (1)	19,700		
Araho (1)	22,300	Nora Sawyer (2)	3,000
Carolyn & Priscilla (3)	82,900	Pocahontas (1)	147,500
Catherine Amirault (1)	53,000	Polaris (2)	123,000
Clara Louise (2)	86,700		
Courier (2)	23,200	Queen of Peace (3)	23,400
Crescent (2)	6,100		
		Sea King (2)	82,000
Eagle (1)	162,000	Silver Bay (2)	222,500
Elmor & Jean (4)	73,400		
Ethelina (4)	97,900	Theresa R. (1)	55,800
Evzone (3)	60,800	Thomas D. (2)	287,600
Geraldine & Phyllis (2)	123,300	Vagabond (4)	110,200
		Vandal (2)	58,900
		Villanova (3)	45,500

Scallop Landings (Gallons)

Adele K. (2)	1,341	Monte Carlo (1)	947
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ATLANTIC FISHERMAN - MARCH, 1952

NEW BEDFORD

Abram H. (3)	63,500	Julia K. (1)	1,000
Adventurer (1)	8,000	Junojaes (1)	24,800
Anastasia E. (1)	6,300		
Anna C. Perry (2)	11,300	Kelbarsam (2)	8,300
Annie Louise (1)	3,700		
Arnold (3)	18,500	Lainee K. (3)	9,700
Arthur L. (2)	24,000	Laboria C. (4)	36,400
Austin W. (2)	20,500		
Barbara M. (2)	37,000	Magellan (2)	64,300
		Maria-Julia (3)	11,800
Capt. Deebold (2)	39,300	Martna E. Murley (3)	44,800
Cari Henry (1)	20,800	Mary & Joan (2)	54,000
Chas. E. Beckman (2)	18,800	Mary J. Hayes (1)	28,000
		Mary Tapper (3)	38,900
Dauntless (2)	23,000	Minnie V. (2)	24,200
Doris Gertrude (3)	41,700	Molly & Jane (1)	10,800
Edith (1)	7,700	Noreen (2)	79,500
Elva & Estelle (1)	11,400	North Wind (1)	13,500
Elva L. Beal (2)	3,200		
Eugene & Rose (2)	26,900	Pauline H. (2)	96,100
Eunice-Lilian (1)	20,000	Portugal (2)	13,500
		Princess (2)	39,700
Falcon (2)	10,200		
Gambler (2)	27,200	Rita (1)	3,000
Gannet (2)	81,500	Roberta Ann (1)	14,000
Gertrude D. (1)	18,000	Rose Jarvis (2)	5,000
Gladys & Mary (1)	29,800	Rosemarie V. (1)	16,600
Growler (3)	36,400	R. W. Griffin, Jr. (2)	34,900
Harmony (2)	18,400	St. Ann (3)	80,000
Hazel S. (1)	5,600	Sandra & Jean (2)	54,000
Helene B. (2)	8,500	Sea Hawk (2)	17,700
Hope II (1)	3,400	Shannon (2)	17,500
Huntington Sanford (2)	8,000	Soiveag J. (2)	60,900
		Sonya (3)	19,300
Idlewild II (1)	1,200	Stanley B. Butler (3)	105,900
Invader (4)	59,700		
Ivanhoe (3)	39,500	Three Pals (3)	14,400
Jacintha (2)	49,500	Venture 1st (2)	33,000
Jennie M. (1)	2,000	Victor Johnson (2)	21,400
J. Henry Smith (1)	6,600	Viking (2)	46,500
Joan & Ursula (2)	25,900	Virginia (2)	52,300
John G. Murley (2)	56,600		
		Whaler (2)	41,000
		Winifred M. (1)	5,200

Scallop Landings (Gallons)

Agda (1)	666	Mary E. D'Eon (1)	600
Apar (2)	1,322	Mary J. Landry (1)	544
Amelia (3)	2,185	Moonlight (1)	1,125
Antonio (1)	555	Muskegon (2)	1,000
B & E (1)	333	Nancy Jane (1)	900
Bobby & Harvey (1)	711	Nantucket (1)	500
Bright Star (1)	944	New Bedford (2)	1,650
		Newfoundland (2)	1,775
Camden (2)	2,040		
Carol & Estelle (2)	1,847	Olive M. Williams (2)	922
Charles S. Ashley (2)	1,010		
Christina J. (1)	700	Palestine (1)	250
		Pelican (2)	1,443
Elizabeth N. (2)	1,795	Porpoise (1)	1,025
Ethel C. (1)	1,125		
Fairhaven (1)	1,000	Red Start (2)	1,883
Flamingo (2)	1,467		
Fleetwing (1)	944	Sea Hawk (2)	1,244
Francis J. Manta (1)	500	Sea Ranger (2)	1,502
Friendship (1)	800	Smilyn (2)	1,755
		Sunapee (2)	666
Janet & Jean (2)	778		
Jerry & Jimmy (1)	1,111	The Friars (1)	700
Josephine & Mary (1)	950	3 & 1 & 1 (1)	500
Kingfisher (2)	1,569	Ursula M. Norton (2)	1,578
Linus S. Eldridge (1)	1,125		
Malene & Marie (2)	1,775	Virginia & Joan (1)	500
Maridor (1)	500	Vivian Fay (2)	2,250
Mary Anne (2)	2,175		
Mary Canas (2)	950	Wamsutta (2)	2,069
		Wm. D. Eldridge (2)	2,013
		Wm. H. Killigrew (2)	1,400

NEW YORK

Alvan T. Fuller (3)	142,300	Miriam A. (2)	59,000
Beatrice & Ida (2)	76,000	Norseman (1)	8,000
Buzz & Billy (1)	23,000		
Catherine C. (2)	56,500	Olivia Brown (3)	105,100
Clipper (2)	80,000	Positive (3)	114,200
Edith L. Boudreau (2)	113,000		
Evelina M. Goulart (2)	83,400	Rainbow (3)	47,000
		Reid (3)	102,500
Felicia (3)	170,000	Richard Lance (3)	41,200
Florence B. (3)	88,400	Rockaway Belle (1)	19,500
		Rosalie F. (3)	66,000
Joseph S. Mattos (3)	77,200		
Katie D. (2)	73,000	St. Rita (2)	43,500
		S No. 31 (3)	71,000
Lady of Good Voyage (3)	140,100	Susan (1)	17,000
Malvina B. (1)	10,500		
Marion & Alice (1)	51,000	Teresa & Jean (2)	67,000
		Th. Queen (1)	27,000
		Tina B. (2)	94,000

Scallop Landings (Gallons)

Bright Moon (2)	577	Victoria (1)	125
Friendship (1)	240	Whaling City (1)	855

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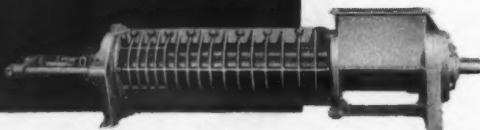
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Addie Mae (5)	4,500	Maria Christina (4)	10,800
Adventure (2)	150,500	Marietta & Mary (1)	7,000
Agatha & Patricia (3)	58,400	Maris Stella (2)	153,000
American Eagle (1)	16,600	Marjorie (1)	3,900
Angie & Florence (1)	12,900	Mary & Jennie (5)	5,800
Annie & Josie (6)	7,700	Mary & Josephine (1)	100,400
Arlington (2)	248,600	M. C. Ballard (2)	113,700
Asservite (2)	100,300	Michael F. Dinsmore (1)	51,000
Atlantic (2)	145,900	Michael G. (2)	5,100
Ave Maria (1)	27,600	Michigan (2)	288,600
Barbara C. Angell (2)	235,400	Mother Ann (1)	143,500
Bay (2)	258,800	Nancy B. (1)	9,500
Benjamin C. (2)	294,500	Natale III (1)	28,500
Bonaventure (1)	70,000	Neptune (2)	206,000
Bonnie (2)	240,200	Nova Antonio (3)	7,500
Bonnie Lou (2)	182,400	Ohio (2)	159,900
Breaker (2)	213,700	Pam Ann (2)	175,500
Breeze (2)	215,900	Phantom (2)	254,800
Brighton (2)	110,200	Phillip & Grace (2)	204,600
Calm (2)	283,800	Plymouth (2)	203,900
Cambridge (2)	196,700	Princess (4)	16,000
Catherine B. (Dragger) (3)	58,200	Quincy (3)	299,700
Catherine B. (L. Tr'ler) (3)	15,700	Racer (2)	190,200
Catherine T. (2)	57,700	Raymonde (1)	37,100
Comet (2)	236,400	Red Jacket (2)	259,300
Crest (2)	242,700	Robert & Edwin (4)	3,400
Diana C. (4)	39,600	Roma (5)	6,300
Dorchester (2)	184,500	Rosalie D. Morse (2)	163,500
Drift (2)	257,300	Rosie (2)	4,300
Eddie & Lulu M. (1)	400	Rush (2)	256,900
Elizabeth B. (2)	109,300	Sacred Heart (5)	4,700
Emily Brown (2)	177,000	St. Anna (3)	15,300
Esther M. (2)	249,400	St. Francis (2)	7,900
Estrela (1)	92,500	St. George (2)	159,800
Famiglia (1)	9,600	St. Joseph (3)	95,900
Felicia (2)	200,800	St. Michael (2)	8,400
Florence & Lee (2)	180,300	St. Nicholas (1)	101,200
Flying Cloud (2)	259,200	St. Peter II (1)	120,200
4-C-688 (2)	5,700	Salvatore & Grace (1)	20,600
4-G-370 (3)	9,700	San Antonio II (3)	19,600
4-G-673 (3)	15,900	San Calogero (6)	8,600
4-H-823 (3)	18,400	Santa Maria (3)	16,500
4-R-630 (2)	12,000	Santa Rita (3)	11,000
Francesca (3)	18,800	Santa Rosalia (3)	10,400
Frances L. McPherson (2)	239,200	Savoia (3)	18,900
Gaetano S. (1)	105,500	Surge (2)	257,800
J. B. Junior (2)	230,500	Sylvester F. Whalen (1)	131,500
Jennie & Lucia (1)	34,200	Texas (2)	192,800
Josephine F. (3)	14,400	The Albatross (1)	127,200
Julie-Ann (2)	246,600	Thomas Whalen (2)	216,000
Kingfisher (1)	94,500	Triton (2)	235,500
Leonard & Nancy (3)	97,500	Uncle Guy (1)	49,300
Little Nancy (3)	73,800	Wave (2)	303,500
Little Sam (1)	2,800	Weymouth (2)	169,800
Lucky Star (2)	197,900	Wm. J. O'Brien (2)	236,200
Mabel Mae (2)	166,400	Winchester (2)	260,300
Madonna De Trapani (7)	10,700	Winthrop (2)	179,000
Maine (2)	222,900	Wisconsin (2)	253,200

WOODS HOLE

Carl Henry (1)	11,700	Gertrude D. (1)	17,000
Connie F. (2)	18,700	Gertrude S. (1)	3,300
Dolly & David (1)	800	Hazel S. (2)	6,700
Elva & Estelle (1)	1,300	Madeline (1)	2,200
Etta K. (4)	12,500	Priscilla V. (1)	16,100
Eugene H. (3)	49,300	Roann (1)	5,900
Gannet (1)	3,100		

Scallop Landings (Gallons)

Brant (2)	723	Muskegon (1)	229
Bright Star (1)	661	Smilyn (1)	158
Charlotte (1)	263	The Friars (1)	122

STONINGTON, CONN.

America (9)	32,100	Mary A. (5)	7,400
Bette Ann (8)	20,900	Mary Ann (1)	3,800
Carl J. (1)	1,700	New England (2)	12,700
Carolyn & Gary (10)	25,100	Old Mystic (7)	29,000
Catherine (1)	42,000	Our Gang (3)	26,600
Connie M. (9)	25,600	Ranger (3)	1,900
Fairweather (9)	25,600	Rita (3)	36,800
Harold (7)	3,600	Russell S. (4)	17,300
Irene & Walter (10)	43,300	St. Peter (1)	700
Jane Dore (7)	10,300	Theresa (4)	8,700
Lt. Thom. Minor (7)	10,100	Vagabond (6)	8,100
Lisboa (8)	18,000	Wm. B. (11)	53,500
Marise (9)	7,000	Wm. Chesebrough (9)	40,400

Shrimpers Make Record Haul

(Continued from page 19)

area lies off the coasts of Louisiana and Texas between the 91st and 95th meridians in depths of from 26 to 50 fathoms. Sample drags by the fishery research vessel *Oregon* in the Fall and Winter of 1950 produced large brown shrimp regularly. No thorough exploration of the area has yet been undertaken, and no unusually heavy concentrations have been encountered in the few sample drags made. These grounds are a considerable distance from United States Gulf ports, and unfavorable weather conditions in Winter plus the lack of fixed points for dead-reckoning navigation will undoubtedly delay utilization of shrimp from this area.

Off the west coast of Florida, north of Ft. Myers, there is a vast expanse of bottom in the 10- to 50-fathom depth range. For the most part, this area is not explored but is characterized by rough bottom unsuited to trawling with conventional gear. Both types of grooved shrimp occur in some parts of the region, but whether these can be taken from the rough bottom in exploitable or commercial quantity remains to be determined. Tests of modified and new-type trawls designed for rough bottom are being carried out as part of the shrimp explorations by the *Oregon*.

Discovery of Red Shrimp

The *Oregon*, in exploratory drags made in deeper water, has found one other kind of shrimp in sufficient quantity to be of commercial interest. This is the red shrimp. The largest numbers have been taken in 190 to 240 fathoms on mud bottom off the Alabama, Mississippi, and Louisiana coasts and off Aransas Pass, Texas. These shrimp are brick red as they come from the water. The heads are proportionately larger than the heads of the white shrimp, but the over-all size is about the same as the common white shrimp. These red shrimp have an excellent flavor, and when the heads are removed, have an especially attractive appearance.

Red shrimp have been taken by the *Oregon* in every exploratory drag made in depths from 190 to 240 fathoms on mud bottom. Most of the drags in these depths have been made with a 40' flat trawl put out on a 20-fathom bridle from a single trawling cable. However, several drags were made with a conventional 100' flat trawl with cables to each door. Both rigs worked well on cable lengths $3\frac{1}{2}$ times the depth.

The time taken to bring the net from 200 fathoms to the deck has averaged about 28 minutes, and it is quite probable that the time required for the net to be set and reach bottom in 200 fathoms is slightly more than 28 minutes. Since the drop-off to deeper water is rather sharp in most 200-fathom depths in the north Gulf, it is necessary to use an echo depth sounder while setting and working the trawl. Investigations of the extent of the stocks of red shrimp are being continued by the *Oregon*.

Refrigerated Sea Water for Preserving Shrimp

Refrigeration of shrimp aboard fishing vessels may be revolutionized by experiments being conducted at the Marine Laboratory of the University of Miami in Florida. These studies indicate that shrimp can be held in refrigerated sea water for two weeks or longer and retain their freshness much better than shrimp placed in crushed ice. Furthermore, these shrimp do not develop the unsightly "black spot" characteristic of shrimp held in ice.

Scientists at the Laboratory put shrimp caught on the Key West grounds in sea water just above the freezing point of water. At two-day intervals some of these shrimp were removed from the water and subjected to taste panel tests. Tasters rated the shrimp as good as those held in ice—the present commercial method—up to eight days after they were caught and they judged them to be better than ice-held shrimp from ten days on.

One sample of headed shrimp held just below 32°F. was still edible after 24 days and was judged to be of excellent quality after 15 days. By contrast shrimp held in ice were inedible after 17 days and were of fair quality at

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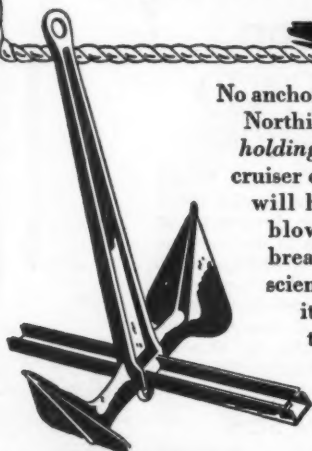
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best after the 12th day. While the usual black discoloration developed on the samples held in ice beginning on the first day after capture, these shrimp held in cold sea water were completely free from black color after 24 days, when the experiment ended.

It is expected that this new technique will prove to be of most value to the offshore shrimp boats—those which make trips of a week to three weeks' duration. Shrimpers operating on Campeche and other distant banks frequently are handicapped by their inability to carry enough ice for long trips. They are sometimes forced to discard part of their catch, both because the shrimp are spoiled and because black spot has developed. Occasionally whole loads have had to be discarded. The saving expected to result from using cold sea water instead of ice should pay for the cost of the refrigeration system in a comparatively short time.

The experiments will be continued in order to study various aspects of the problem, including the best temperature for holding the shrimp, the amount of sea water needed in relation to the amount of shrimp, and such questions as whether it is necessary to change the water during the course of the trip.

Georgia's Untapped Fishing Grounds to Be Explored

Brunswick is to be the base for a two-year Federal study of untapped commercial fishing grounds off the southeast coast. As many as 20 families are expected to accompany employees of the Government survey crew who will begin arriving in a few weeks.

Explorations at sea will be done aboard the *Gill*, a 100-ft. vessel especially fitted for such work by the Fish & Wildlife Service. W. H. Norris, supervisor of coastal fisheries for the State, and one of those instrumental in bringing the survey crew to Brunswick, has provided office space for compilation of the survey's findings in the fisheries headquarters building.

Enforcement of Shrimp Ban Delayed

State Game and Fish Director Fulton Lovell said on February 14 that his department will not attempt to ban commercial fishing and shrimping in all of Georgia's coastal waters this year. However, he stated that he would start March 15 to enforce a ban on such shrimping and fishing in the inland waterway, and the sounds and rivers, unless such waters are opened by action of the voters prior to that date.

The recent Legislature passed a law, signed by the Governor last month, to prohibit all commercial shrimping and fishing in both "inside" and "outside" territorial waters each year from January 1 to March 15.

The bill also provides that all the sounds and other inside waters must remain closed unless and until the counties affected vote to open them in local referendum. If approved by the voters such openings would be permitted only between March 15 and December 31. The closed season in the new act is the first ever imposed on "outside" waters.

Allows Oyster Planting in Private Waters

A bill adopted by the General Assembly during the recent session is expected to encourage the re-establishment of an oyster industry along the coast. The measure permits owners of land surrounding an inlet to plant oysters in the stream and prohibits the harvesting of the oysters by anyone other than the owner or his agent.

Such an inlet must be posted as a private oyster bed. The stream remains public territory as far as fishing is concerned, only the taking of oysters being limited.

The bill does not allow a section of a stream to be closed off for oyster planting midway along the stream. The land owner must control property surrounding the source of the stream or cooperate in the oyster planting with adjacent owners.

Canadian Report

By C. A. Dixon

The month of February proved to be a profitable one for southern New Brunswick sardine purse seiners and others engaged in the production of sardines. There were periods when the overall catch exceeded the demand.

With the advent of March, the tempo incident to the collecting of weir material of all kinds and descriptions has been materially increased following one of the snowiest Februarys in history in the fishing communities of southern New Brunswick. Large quantities of brush, ribbands stakes and bedlogs and braces as well as flooring for piers, have been cut and hauled to the roadsides or banks, in preparation for early weir building, because of the promising outlook for the 1952 sardine packing season. To date, there has been little ice to damage weirs badly and some of the structures at least still remain in as good fishing condition as they were last Fall. Others will need considerable repair and rebuilding due to the damage done by the ravages of high winds and rough seas during one of the stormiest Winters on record.

Newfoundland Fresh Fish Catch Up

The trend in Newfoundland away from dependence on the production of salted fish and toward increased sales of the fresh and frozen fish product, notable for the past few years, was more marked in 1951 than ever before.

The total production of frozen groundfish during the year was in the vicinity of 34 million pounds. Of this amount frozen cod fillets accounted for about 18 million pounds over 1950. Other species of groundfish such as haddock, flounder, rosefish, and sole were processed in large quantities but the total amount was about one million pounds less than in 1950. Lower catches of haddock resulted in a drop in the production of haddock fillets from seven million pounds in 1950 to two million pounds in 1951. There was an increase, however, of some four million pounds in the production of rosefish.

The processing plants were supplied mostly by the dragger and trawlers in operation during the year, although some of the inshore fishery's production was used.

The number of bankers operating from Newfoundland reached an all-time low in 1951. Only a few vessels salted their catches and it is estimated that the deep sea production of salted fish came to only about 5,000 quintals. Some idea of the way this phase of the fishery has fallen off can be gained from comparing this figure with that of 1937, which was 250,000 quintals.

Lobsters Will Live in Artificial Sea Water

More live lobsters may be available to inland cities as a result of the discovery by Canadian fishery scientists that these crustaceans can be kept in artificial sea water.

During the past year preliminary experiments were conducted by Dr. D. G. Wilder at the Fisheries Research Board's St. Andrews station. In one experiment, vigorous lobsters lived for three weeks in a wooden tank containing artificial sea water.

The artificial sea water was made from a relatively simple mixture of five readily available salts, sodium chloride, potassium chloride, magnesium chloride, calcium chloride and magnesium sulphate. The water was oxygenated by means of compressed air.

Atlantic Port Privileges

United States fishing vessels may continue to use any port on the Atlantic coast of Canada during 1952 to purchase bait, ice, seines, lines and other supplies provided they have licenses for that purpose. Foreign vessels may use Newfoundland ports under the same conditions. Licenses are issued by the Minister of Fisheries, Ottawa, Canada. The license fee is one dollar.

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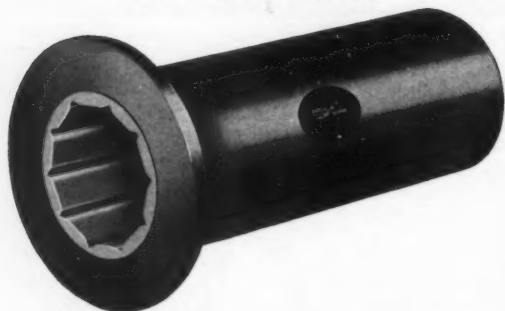
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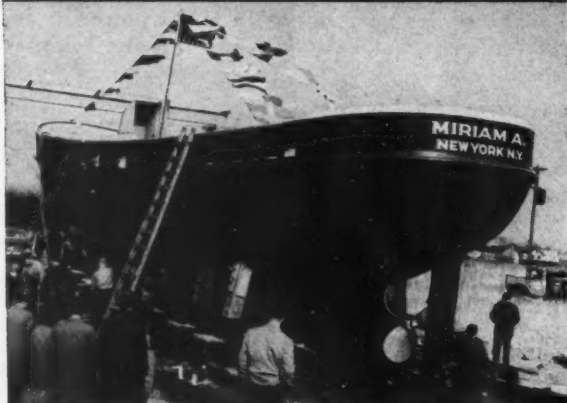
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COLUMBIAN BRONZE CORP.

FREEMONT • LONG ISLAND • NEW YORK

Maximum Service from Wire Rope

(Continued from page 23)

covering has aided immeasurably in the prevention of water absorption and breakdown through chafing.

The present day construction of 6 x 6 combination rope did not come about immediately. In the evolution of change from a hemp to a combination wire and hemp rope, it was found that construction of first a 3-strand and then a 4-strand rope were not pliable enough for easy handling and kink free framing of the net. The 6-strand combination rope now being used has been found to satisfy these requirements and today is well accepted. In particular, the 1" diameter combination rope in the 6-strand construction, only recently available, has been found to be an improvement over the formerly used 4-strand type.

Purpose of Fiber Heart

Many times in the past we have been questioned by fishermen regarding the nature and purpose of the fiber heart or center in a wire rope. In non-technical language the primary purpose of a fiber heart is to act as a support and cushion for the outer steel strands. These steel strands must be allowed freedom of movement while the rope is working. This freedom of movement in a rope is imperative while it is under load in order that steel strands do not rub on steel strands. If this freedom of movement is not present the rubbing or abrasive action of steel against steel causes nicking and cutting of individual wires and results in rapid breakdown of the wire rope.

The strength of the fiber heart is a negligible factor in developing the ultimate strength of the finished rope; however, its hardness and resistance to compression is of paramount importance in giving us the proper support allowing for freedom of movement in the steel strands. If proper hardness of the fiber heart is lacking, compressive stresses on the center, brought about by surge and heavy loads of normal rope operation while a set is out, cause a shrinkage of the proper heart diameter required to insure freedom of movement of the strands.

While the heart is of utmost importance in a rope, the quality of the steel wires themselves, it can be readily realized, is of just as vital importance. Quality control of the steel wires should be complete and uninterrupted from the actual smelting of iron and steel to the final making of the finished rope. Longer, more economical and uniform service are the results of quality control of steel wires and these are reflected in lower gear costs.

Protection Against Corrosion

In the trawling industry, one of the prime causes of wire rope deterioration is the rapid corrosive action caused by salt water. Zinc, a self-sacrificing metal, is applied as a protective coating on the steel wires. Although zinc itself is subject to corrosion its rate of breakdown is comparatively slow, and while it is present as a coating on the steel, it will sacrifice itself to protect the wire beneath it. Abrasive wear on the crowns of trawl wires will wear through the zinc coating at these points at a much faster rate than in the valleys where abrasive action is minor but where corrosion attack is paramount. Sufficient thickness of zinc coating is applied so that valley wires are amply protected.

Taking this preventive action one step further the rope is coated with a special lubricant to provide added protection against the corrosion caused by salt water immersion. No lubricant protection can long withstand the scouring and washing action encountered by those lengths of line actually over the side and working the gear, nor is it intended that this added lubricant can long afford protection to those lengths of the line. Its importance lies in the protection that it gives to the "shot" on the drum which for some months is stored there awaiting its turn to actually come to the front and go fishing.

If this lubricant is of sufficient sealing power, salt spray and drippings from the working line are prevented from getting in their deadly corrosive effects. This allows the inner "shot" so far as rust is concerned, to be in near perfect condition when it actually does go fishing.

From our contacts with many of the captains and the

crews of trawling vessels, with the personnel of marine supply houses, with ships' riggers and in fact with people of all phases of the trawling industry, have come many and varied responses to our questions pertaining to generally expected rope life. In fact, we do not believe that any two answers could possibly be the same because of the great number of varying factors encountered such as type of bottom fished, size and power of vessels, type and size of winches, human factors, weather conditions, condition of gear, and others too numerous to mention.

Of paramount importance to the fisherman are the size and frequency of his gear bills. A sizeable portion of these lies in the cost of the wire ropes of all types that he uses. His main trawl lines are of course the greater share of his wire rope bill. Whether it be the main trawl line, the net ropes, or the deck ropes, it is the manufacturer's concern to see that the size of the fishermen's wire bills are kept to a minimum.

The grade of steel for general fishing ropes has been progressively raised from Cast Steel to the full Plow grade now in use. Plow Steel is a steel of higher tensile strength combined with good resistance to abrasion and bending fatigue. It has been found to be ideally suited to this industry's requirements. As service conditions have become more specialized, wire rope has been made available in an increased number of sizes and constructions.

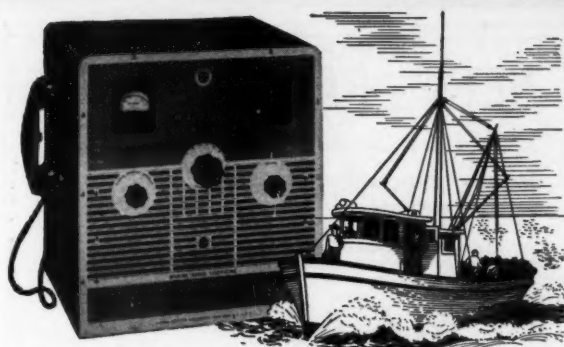
Getting Maximum Life from Gear

We realize that the fisherman himself is deeply concerned in keeping his gear costs down, and are pleased to offer a few suggestions which we feel will be helpful to him in this direction. The winch man who is guiding the rope onto the drum should exert every effort to obtain as smooth a winding condition as possible. In any hoist layout it is exceedingly important that proper attention be given to this so that pile-ups on one side of the drum and its resultant slip-off causing crushing, interlocking, kinking and nicking of the rope be avoided.

Periodic checks should be made on the bollard and gallowes sheaves to be certain that those sheaves are free of excessive imprint of the rope contour in the surface of the grooves and that they spin freely on their shafts. Sheaves which are found with deeply cut grooves should be either refaced or replaced. Towing blocks should be maintained in an unscored condition so that when the main wires are locked into place there will be no deeply cut and grooved surface present to cause a filing action on the ropes during trawling operations. When these blocks are refaced it is suggested that a welding rod of not too hard a steel be used. If a welding rod is used that is of harder material than the wires in the rope itself, then this will abrade and cut the wires in the rope.

The forward gallowes frames, both port and starboard, should never be neglected as a major source of abrasive wear on the main trawl lines. Both of these frames, depending upon which side a set is made, contribute to decreased rope service and increased wire bills, when that part of the frame facing aft is allowed to be cut and scarred too deeply by the rubbing action of the main wires. This rubbing action is particularly bad on the haul back of a set in rough weather. Some vessels have welded a section of half round stock to this part of the frame. The idea is sound. However, a quick survey will show vessels where even this half round has been grooved as deeply and more than the diameter of the wire itself. Nothing could be more detrimental to trawl line life, and grooves in gallowes frames should be kept from becoming deep.

Trawling takes place on a wide variety of bottoms. Often trawling vessels spend much time fishing in waters of comparatively sandy bottom and the ground line and those parts of the main line nearest to the ground line come aboard with considerable amounts of imbedded sand. In order to prevent this sand from acting as a harsh abrasive agent on both the wire rope and the sheaves, it is suggested that this gritty material be hosed off before the next set is made. Small amounts of lubricant applied to the main lines at the completion of a trip will also help to increase the length of life that ropes will render.



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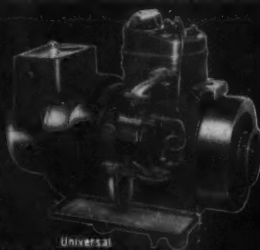
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Vineyard Bailings

By J. C. Allen

If we wrote up the log for February in these latitudes, with a view to saving ink and labor, we could pen about one sentence, "Lousy weather, lousy luck, and some bay scalloping", and cover the rest of the sheet with ditto marks. It would tell the story about as well as anything we can imagine.

All the cussed weather that might have been doled out in small whacks through the rest of the Winter came piling up in February, making life miserable for all hands. Maybe there wasn't so much snow, even if you took it altogether, five inches, six, all-told, perhaps. But it was so damned much more than our folks have been accustomed to that it bothered.

Now be it known that the Winter as a whole has been very moderate; high temperatures mostly, with dandelions blooming every cussed month. A couple of times it froze a little, but no more than that, and we had no real gales until February.

Then it breezed! Official records and readings gave us 45-mile winds, but we will say that it was the hardest 45-mile wind we ever saw or experienced. It didn't carry away much of anything locally, because our fellows always anticipate the worst and, not knowing how bad it may be, they take all kinds of precautions against the damage. But so help us, the percentage of bald heads among our men-folks has jumped from maybe 20 to 42, just from the strain on their scalp-locks from the pull of the February winds! There are people who may doubt this, but, by godfrey, we can point out the bald heads!

As anyone might suppose, the fishing industry suffered. It is difficult as the devil to work gear unless a vessel lays right-side-up part of the time. A man loses his balance, and drops things otherwise, thus slowing up the proceedings terribly. Besides he gets water down the back of his neck, and it raises hell with his disposition.

And so, nobody has too good an idea of what there is off-shore. Vessels prospected all over the ocean, getting driven in again and again. There have been times when it appeared as if there were really some fish on the grounds, but the spells of fishing were so cussed brief that no one is real certain about it. It could be that they just hit a little pod or something of the kind.

It seemed to us, from what the gang said, that there was a movement among some varieties of groundfish that was maybe weeks earlier than usual, such as the apparent move of flounders inshore. We know that water temperatures have been high for Winter, and it could be, we suggest, that the spawning might be set ahead some.

Small bait of all descriptions have been schooled around the shores and docks all Winter, and even when we had a flurry of snow it was still there. Seals and blackfish have been cruising about most of the time, which indicates that there was something for these critters to eat. The only fish that came into the beaches in any quantity were the mullet, as we have previously reported, but there could have been other stuff.

It has been noticeable that the cod and haddock have been scarce, especially the cod. Occasionally a vessel running wide out picked up some haddock, but only occasionally. It does not seem that there has been any real concentration of cod within many miles of these bearings. This doesn't mean, necessarily, the extermination of the cod, but if it isn't that, then it surely means that the fish are dissatisfied with the old bearings, and that is what plenty of our sea-skimmers seem to think. The water is too cussed warm; that's the trouble. And more and more men are suggesting that this is the reason for the falling-off of lobsters for the past three years.

Maybe there's a silver lining under the cloud. Soft-shell clams have suddenly appeared, more plentiful than at any time in the past half-century. Quahaugs have never

failed us, and the sea-clams are likewise coming back. We noticed during February that in the shoal water over the clam-flats, the shrimp, running previously to maybe an inch to inch-and-a-half overall, now average nearer three inches. In fact, it would almost be possible to take these shrimp commercially. It has never been within our memory, and so far as we know nobody ever took shrimp in these waters, even a few to eat.

The query that everyone voices is this: allowing that the weather sharks are right, and this change of climate indicates the trend, and allowing, too, that it will mean a movement of cold-water fish to other bearings, affecting the sword, as it did last year, and maybe some other species; assuming all this, does it also mean that Southern fish will gradually work North until they compensate for the loss of the others?

Mackerel have swum all Winter. Butters and scup have been taken closer inshore than ever, and be damned if we believe they were all in the mud. But aside from a moderate run of dolphin, there has been no Southern fish run inshore in any quantity as yet. The occasional twos and threes and even dozens of pompano, Spanish mackerel and so-on, don't mean a thing. We have always had 'em during a hot Summer. Somehow it seems to us that right now is an interesting time to be alive. Maybe there isn't much money to be made, but there are things to see.

North Carolina Shad Season Opens with Fair Catches

The shad season is on in North Carolina waters, and some fair catches have been made. However, many fishermen had no nets ready when the run started. In fact, some of the fishermen were just making nets last month.

Roy Midgett of Manns Harbor, who is usually a successful fisherman, caught 90 shad one day recently. Some better catches have been reported at Stumpy Point, long famed as the shad capital, but where comparatively few rigs are now operated.

Usually the best month for shad fishing is March, but there have been occasional years when almost the entire catch was made in January.

To Head Fisheries Laboratory

G. B. Talbot, who for the past two years has headed the shad investigations of the U. S. Fisheries Laboratory at Beaufort, has been appointed chief of the Middle and South Atlantic Fisheries Investigations, a position held by C. E. Atkinson before his recent promotion and transfer to the Pacific Coast.

The fisheries research which Mr. Talbot will direct includes the shad investigations, the Atlantic salmon research and several cooperative studies extending along the entire Atlantic Coast.

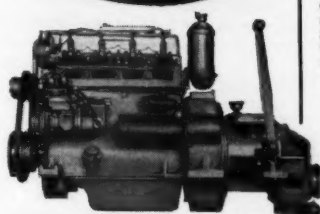
Mr. Talbot is a native of Tacoma, Wash. He attended the School of Fisheries of the University of Washington where he received the degree of B.S. in Fisheries in 1944 and later in 1947 was awarded the degree of M.S. in Fisheries after completing graduate studies.

While at the University of Washington, Mr. Talbot was employed by the Applied Fisheries Laboratory where studies were undertaken to determine the effects of X-rays on living tissue.

Porpoises Damage Fishing

A school of ocean porpoises which recently moved to the fresh and brackish waters of lower Currituck Sound have become a problem. At a recent meeting of the Kitty Hawk Civic Club, commercial fishermen stated that the porpoises were killing food fish and that as a result catches have dropped to almost nothing.

A porpoise is said to eat its own weight in fish about every 24 hours. Therefore, a 300-lb. porpoise multiplied by a school of 20 of the creatures, means the loss of about 6,000 lbs. of fish daily.



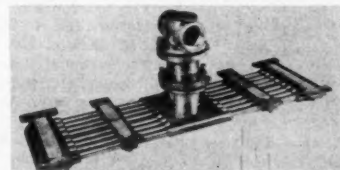
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*Detroit Diesel Engine Division, General Motors Corp., Series 71 Marine Diesel, 13400 W. Outer Drive, Detroit 23, Michigan.

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Nap. J. Hudon, 40 Fish Pier, Boston, Mass.

*Universal Motor Co., 436 Universal Drive, Oshkosh, Wis.

GENERATORS

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HOOKS

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LORAN

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Sperry Gyroscope Co., Division of the Sperry Corp., Great Neck, N. Y.

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*Frontel Net & Twine Co., 24 Flanders Rd., East Hampton, Conn.

*The Linen Thread Co., Inc., 105 Maplewood Ave., Gloucester, Mass.

*Moodus Net & Twine, Inc., Moodus, Conn.

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*Gulf Oil Corp., Gulf Bldg., Pittsburgh, Pa.

Socony-Vacuum Oil Co., Inc., Marine Sales Dept., 26 Broadway, New York 4, N. Y.

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RADAR

*Radiomarine Corp. of America, 75 Varick St., New York 13, N. Y.

*Raytheon Mfg. Co., 138 River St., Waltham 54, Mass.

RADIO TELEPHONES

- *Applied Electronics Co., 1246 Folsom St., San Francisco 3, Calif.
- *Hudson American Corp., 25 West 43rd St., New York 18, N. Y.
- *Radiomarine Corp. of America, 75 Varick St., New York 13, N. Y.
- *Raytheon Mfg. Co., 138 River St., Waltham 54, Mass.

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- "Shipmate": The Stamford Foundry Co., Stamford, Conn.
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- *Twin Disc Clutch Co., 1341 Racine St., Racine, Wis.
- *G. Walter Machine Co., 84 Cambridge Ave., Jersey City 7, N. J.
- Western Gear Works, 2600 E. Imperial Highway, Lynwood, Calif.

RUST PREVENTIVE

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- Gibbs Corp., Jacksonville, Fla.
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- Muller Boat Works, Inc., East 69th St. and Ave. V., Brooklyn 34, N. Y.
- *Frank L. Sample, Jr., Inc., Boothbay Harbor, Me.
- Story Marine Railway, So. Portland, Me.

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- Cunningham Mfg. Co., 4200 West Marginal Way, Seattle 6, Wash.

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- Stroudsburg Engine Works, 62 North 3rd St., Stroudsburg, Penn.

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- American Steel & Wire Division, United States Steel Co., Rockefeller Bldg., 614 Superior Ave., Cleveland 13, Ohio
- Bethlehem Steel Co., Bethlehem, Pa.
- *John A. Roebling's Sons Co., Trenton 2, N. J.
- *Wickwire Spencer Steel Division of the Colorado Fuel & Iron Corp., Palmer, Mass.

Report Progress in Red Tide Investigation

The far-reaching investigation being conducted at Sarasota, Fla. by the U. S. Fish & Wildlife Service into the causes and effects of the red tide, spasmodic marine plague of the Florida coast, is starting to pay off. Dr. L. Basil Slobodkin, chief of red tide research, and his staff are finishing preparation of a paper giving at least a partial solution to the mystery of the fish-killing red colored water.

The principal line of research has been to understand why floating organisms known as dinoflagellates, at the mercy of the currents for transportation, should suddenly multiply at a staggering rate and remain in one fairly well-defined area. Estimated measurements of the red tide have been made by the Fish & Wildlife Service.

All indications point to the fact that the tide is contained in a huge flat lens or bubble of fresh water floating on the top of heavier salt water. This bubble may cover acres or scores of acres and extend from a few to many feet in depth. The tiny organisms are generally concentrated in a layer only a few feet deep.

Another peculiarity of the red tide is that this layer of growing, reproducing, matter will remain on top of the fresh water bubble during the day to seek sunlight and sink to the lower levels during the night, when most of the fish are killed.

In almost every case the researchers have been able to examine, the red tide was preceded by the same combination of circumstances—high temperatures, heavy rainfall, calm surface and a stable water mass with unusually light tides. The bubble of lighter fresh water caused by rain or washed out from land is allowed to float intact while the sun warms it and the microscopic life it already contains increases without being dissipated throughout the ocean.

Practically without fail, the red tide has come to an end when strong winds, high tides or choppy water have broken up the unusually favorable circumstances for organic reproduction.

"It would be reasonable to assume," Slobodkin reports, "that the red tide could be dispelled through some method of inducing a poison that would combat the organisms, or, on a smaller basis, of breaking up the 'bubble' containing the tide by agitating the water. This could possibly be done by rapidly moving boats or by explosions that would cause a turnover in the water. However, no economically practical method of accomplishing this is now envisioned."

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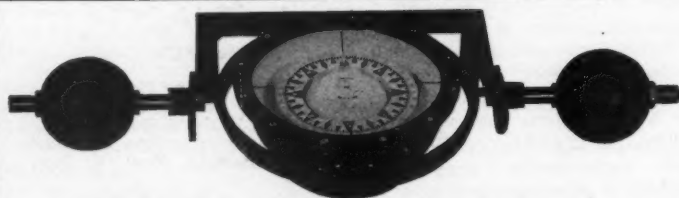
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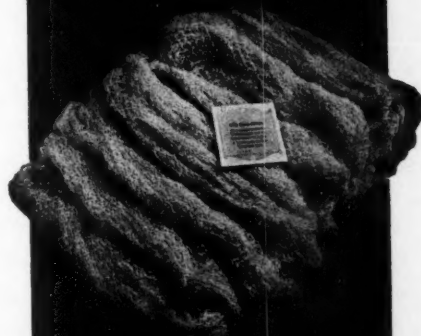
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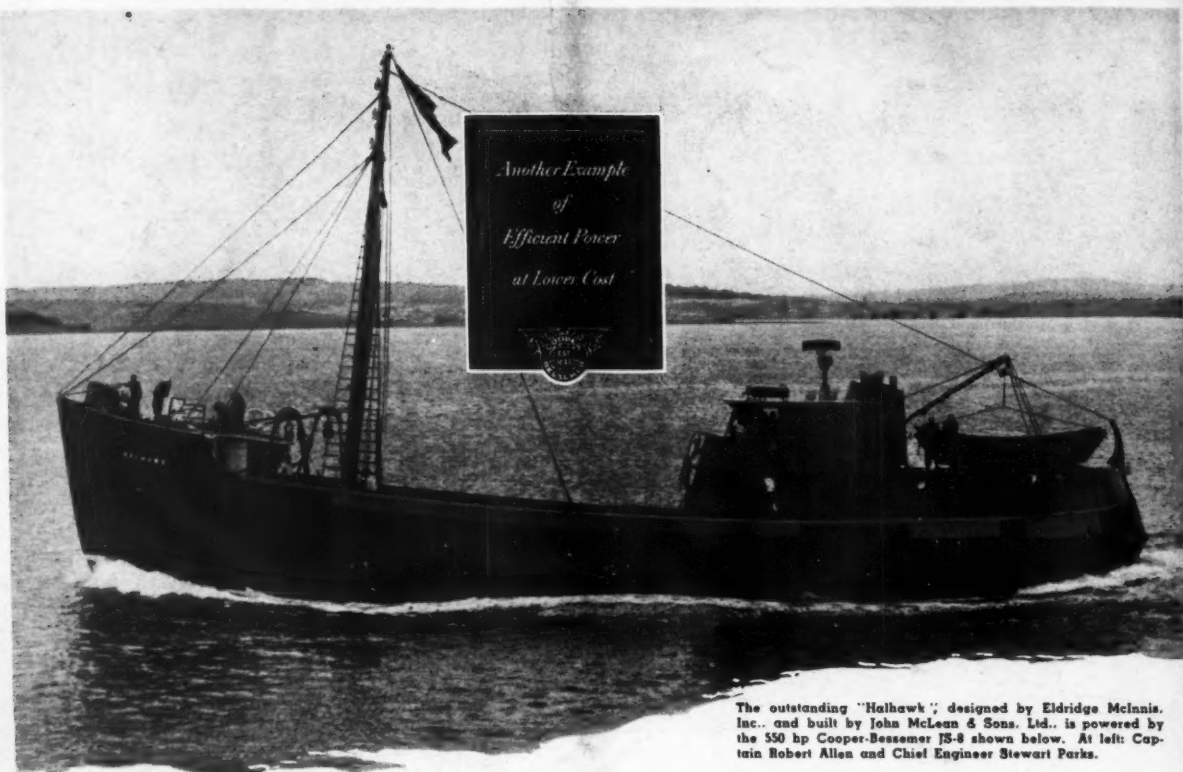
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